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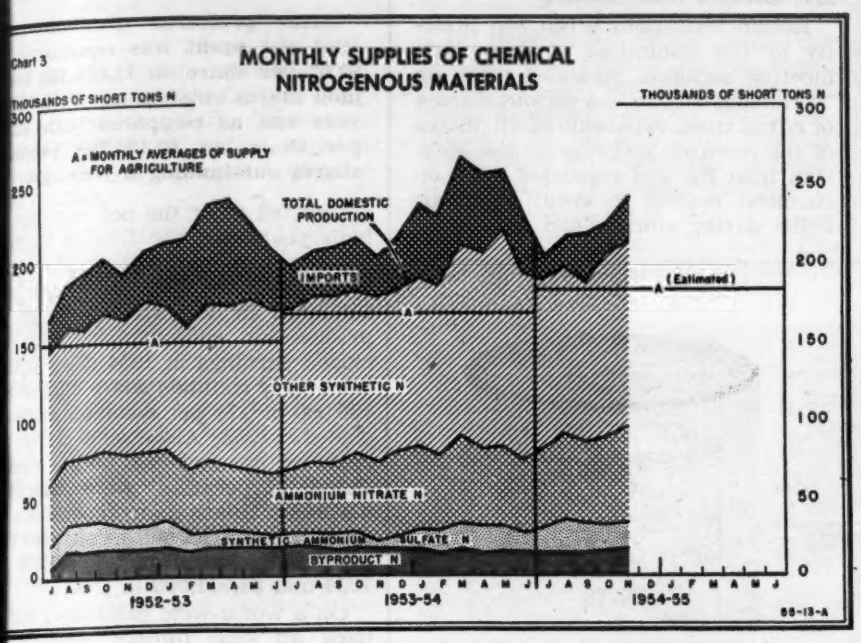

Fertilizer Industry in Best Position to Meet Demand, Says Commerce Department Report

WASHINGTON — Except for possible shipping delays during the rush delivery season this spring, the fertilizer industry is in a fine position to supply principal plant food materials to agriculture, according to an industry report by the U.S. Department of Commerce in the current issue of "Chemical and Rubber." This publication, issued monthly by the Business and Defense Services Administration, says that the industry has never before possessed the capacity to produce at such a high rate.

According to the report, total capacity for anhydrous ammonia in the U.S. as of Feb. 1, 1955, is estimated to be some 2,840,000 tons, nitrogen content, representing an increase of 630,000 tons N compared with that in existence on Feb. 1, 1954.

"It is highly probable that an additional 600,000 or more tons N capacity will come in during the next 12-18 months from plants now under construction or which are now in the final planning stages," the department states.

In addition to nitrogen derived from anhydrous ammonia, some 240,000 to 265,000 tons N a year could also be made available from byproduct ammonium sulfate, ammonia liquor and organic wastes, the report continues.

Total current annual capacity for nitrogen in all forms, thus, may be considered to be approximately 3,100,000 tons N, which amounts to nearly 260,000 tons N a month.

The accompanying chart shows monthly production and imports of nitrogen during the past two fertilizer years. Production is separated into by-product (principally ammonium sulfate), synthetic ammonium sulfate, ammonium nitrate and other synthetic nitrogen (total ammonia-N content of ammonium nitrate and synthetic sulfate). The latter category includes all ammonia used as such or in solutions, for making urea, sodium nitrate, nitric acid (other than that used to make ammonium nitrate), and other products for which production data are not available.

It is estimated that ammonia distributed as anhydrous and in solutions for ammoniating mixed fertilizers, direct soil application and miscellaneous industrial uses, accounts

(Continued on page 21)

Inside You'll Find

Insect Notes	4
Over the Counter	9
Oscar and Pat	10
Cash Register	12
What's Been Happening	13
What's New	14
Bug of the Week	16
Farm Service Data	18
World Report	23
Editorials	26
Index of Advertisers	27
Meeting Memos	27

Grain Insect Control Stressed at North Central ESA Meeting

By LAWRENCE A. LONG
Editor of Croplife

LANSING, MICH.—Developing the theme, "Today and The Next Ten Years in Entomology," the North Central Branch of the Entomological Society of America held its 10th annual conference at Kellogg Center, Michigan State College, here. The meeting occupied two full days, March 24 and 25. Entomologists present represented not only the middle west, but also surrounding states as well as Canada and other countries. More than 300 persons registered for the event.

Dr. Harold Gunderson, Iowa State College, Ames, took over the duties of chairman to succeed Dr. T. C. Allen, University of Wisconsin. Chairman elect, who will assume his duties in 1956, is Clarence Mickel, Department of Entomology, University of Minnesota, St. Paul. Dr. Mickel will succeed Dr. Gunderson as chairman at next year's meeting, scheduled to be held at Purdue University, Lafayette, Ind.

Subjects covered at the meeting included many phases of agricultural pest control. Attracting unusual interest, however, were sessions on cereal crop insects and a panel discussion on control of insects attacking stored products.

That preventative measures are important to keep weevils and other grain infesting insects from gaining a foothold in storage places, was seen by at least two of the speakers in the symposium on stored products insects. H. H. Walkden, USDA entomologist, discussed various means of fumigating stored grains, enumerating a number of the methods used in the past and at the present for this purpose. He indicated that forced circulation of air through grain storage places makes possible the introduction of fumigants throughout the mass, thus making possible a more thorough job of reaching all portions of the bin.

However, in looking ahead ten years, Dr. Walkden said he expects to see an increased use of preventive rather than curative methods of controlling insect infestations in grain. "The grain farmers will raise it clean, and keep it that way," he predicted. An increasing use of the

(Continued on page 24)

Fertilizer Control Bill Passes in Arizona

PHOENIX—A bill to regulate the manufacture and sale of fertilizers and agricultural minerals, providing for testing and setting up penalties for mislabeling, has been given final passage by the Arizona Legislature.

Georgia Firm Sold

ATLANTA—The Brooks Chemical Co. of Quitman, Ga., has been sold by owners E. M. and Q. M. Mathis to the Southeastern Liquid Fertilizer Co., of Albany. The sale included the bulk plant and part of the equipment. Harry Jenkins of Albany has been named by Southeastern to manage the Quitman plant.

Production to Start In Israel Pesticide Plant This Year

NEW YORK—A $2,500,000 chlorine and caustic soda plant now under construction by the Electrochemical Industries (Frutarom) Ltd., on a 75-acre site 10 miles north of Haifa, will begin production toward the end of this year, according to Yaacov Salmon, chairman of the company. Mr. Salmon, who visited the U.S. recently, said that the enterprise is still open to an additional investment of some $200,000. Close to $1 million of the company's capital was supplied by American investors, mainly from Los Angeles, San Francisco and Cleveland. The Israel Government extended a long-term loan of $1,250,000 to the new venture which has been

(Continued on page 25)

FOA Authorization

WASHINGTON — Foreign Operations Administration has announced a $1,350 authorization to Iran for equipment for insect and plant disease control work. The ending delivery date is June 30.

FIRST PESTICIDE TOLERANCES ESTABLISHED UNDER MILLER LAW

WASHINGTON — George P. Larrick, commissioner of the Food and Drug Administration, U.S. Department of Health, Education and Welfare, has announced that he has signed an order establishing the first tolerances under Public Law 518, amending the Federal Food, Drug, and Cosmetic Act, which became law in July, 1954. The order was published in the March 25 Federal Register.

The tolerances are established for residues of a weed killer, SES (2, 4 - dichlorophenoxyethyl - sulfate) manufactured by Union Carbide and Carbon Corp., New York. Six parts per million of SES residues will be permitted in or on potatoes, peanuts, peanut hulls and peanut hay; and 2 parts per million will be permitted in or on asparagus and strawberries.

Mr. Larrick said that evidence submitted by the manufacturer shows that the permitted residues on food will be safe.

He said that tolerances for residues from other agricultural sprays and dusts for which petitions are being received will now be announced in the future by publication in the Federal Register.

"Establishment of these formal tolerances will help to insure that farmers can produce crops that are free from harmful amounts of the poison-

(Continued on page 21)

1955 Corn Price Support Rates to Be Based on $1.58 Bu.

WASHINGTON—The U.S. Department of Agriculture has announced that minimum price support rates for 1955-crop corn in the commercial and noncommercial corn-producing areas will be based on $1.58 bu., which is 87% of the Feb. 15 corn parity price.

Price support rates in the commercial corn-producing area will be at 87% level, but because corn acreage allotments are in effect in the commercial areas for 1955, the law provides that rates in the noncommercial producing area will be 75% of the commercial area support rates.

Support rates under the 1954 program were based on $1.62 bu. which was 90% of parity.

The minimum support rate of $1.58 bu. for 1955-crop corn will not be reduced but may be increased if a combination of the corn parity price as of Oct. 1, 1955 (the beginning of the marketing year) and the supply percentage as of that date indicates a higher minimum level of support.

Rates by counties for price support loans and purchase agreements will be announced at a later date.

To be eligible for corn price support in the commercial producing area, producers must be in compliance with corn acreage allotments.

Allotments for the 1955 corn crop in the commercial area announced on Jan. 31 were based on corn supply and consumption estimates. The allotment of 49,842,697 acres calls for increase of about 8% in the 1955 commercial area as compared with the allotment for the identical area in 1954. (See page 1 of the Feb. 7 issue of Croplife.)

A total of 805 counties in 21 states is included in the 1955 commercial area. Counties outside this area are in the noncommercial area under the price support program and do not have acreage allotments.

Citrus Advisory Group Urges More Research On Pests, Disease

WASHINGTON — At its annual meeting in Washington recently the U.S. Department of Agriculture Citrus Fruit Research and Marketing Advisory Committee stressed the need for an expanding research program on citrus to keep pace with problems facing the industry. The committee urged also that plant-quarantine work at the country's borders be greatly strengthened to prevent entrance of dangerous insects and diseases from abroad.

Recommendations given top priority by the committee at this year's meeting included expanded work on "spreading decline"—a serious disease of citrus trees, expansion of all phases of the research program on the Mexican fruit fly, and expanded work on chemical control of decay in citrus fruits during storage and transit.

Olin Mathieson Earnings Show Increase in 1954

NEW YORK — In the annual report distributed to shareholders recently, John M. Olin, chairman, and Thomas S. Nichols, president, announced that Olin Mathieson Chemical Corp. and its consolidated subsidiaries in the U.S. and Canada achieved 1954 net earnings of $34,292,000, an improvement of nearly 14% over the 1953 earnings of $30,093,000 on a pro forma basis.

After preferred dividends, the 1954 net profit was equivalent to $3.02 per share on 11,006,365 common shares outstanding at the 1954 year end as compared with $2.77 per share on 10,495,599 common shares outstanding a year ago.

Omitted from the net earnings for both years are the foreign earnings in countries with unrestricted currencies which were previously consolidated in the statements of the predecessor corporations. Such excluded earnings in 1954 were $1,181,000 or 11¢ common share against $1,750,000 or 17¢ per common share excluded in 1953. Also excluded from the reported net earnings of the consolidated corporation were additional earnings relating to operations in foreign countries with restricted currencies representing $3,061,000 in 1954 and $1,051,000 in 1953.

On a world-wide basis after adding back all such foreign earnings the 1954 net profit reached a total of $38,584,000 or $3.41 per share, up 17% over 1953's $32,894,000, or $3.0 per share.

The consolidated sales of Olin Mathieson Chemical Corp. in 195 were $470,108,000 against 1953 $464,605,000. Excluded from thes totals ars sales of $38,982,000 fro foreign operations in 1954 and $32 704,000 in 1953. On a worldwide basi after elimination of inter-compan transactions, the 1954 sales total wa $497,489,000, or an improvement 2% over the 1953 total of $488,245 000.

Olin Mathieson Chemical Corp. r sulted from the merger of Olin I dustries, Inc., and Mathieson Chem cal Corp. Aug. 31, 1954.

The report noted that industria chemical operations for the yea were at satisfactory levels, tha sales of agricultural chemicals, ex plosives and fine paper increase over those in 1953 and that inter national operations continued t grow despite currency problems i several important markets.

The corporation's current expa sion program involves an estimat expenditure of $50 million for new f cilities, the report revealed.

Dorr-Oliver Opens Two New Offices

STAMFORD, CONN.—Dorr-Oliv Inc., has announced the relocation its Chicago office in Merchand Mart and the opening of a new off in the Midland Bldg. in Cleveland.

The staff formerly located in bo Chicago and Evanston will be hous in the new Chicago office. It w serve as headquarters of the Cent Sanitary Division managed by O. Lindell and the Central Industrial vision under the direction of R. Johnson.

R. R. Denison, central industr sales engineer, and J. N. McKenna the Central Sanitary Division staff the office in Cleveland.

CHEMISTRY IN AGRICULTUR

LONGVIEW, TEXAS—A prog built around "Chemistry in Agri ture" will be held in the high sch auditorium here April 15, sponso by the East Texas Chamber of C merce.

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Diamond Announces Promotion of Three Engineering Executives

CLEVELAND — Diamond Alkali Co. has announced the promotion of three veteran engineering executives.

Appointees are:

George V. Dupont, chief staff engineer of the Central Engineering Dept. since October, 1954, who becomes manager of manufacturing operations for Diamond Black Leaf Co., which was recently organized by Diamond and Virginia-Carolina Chemical Corp. to carry on the manufacture and marketing of Black Leag pest-control products.

Robert C. Sutter, formerly chief group engineer of the Central Engineering Dept.'s staff section at Painesville, Ohio, is named assistant director of engineering, a newly created position.

Edward J. Loeffler, Jr., for the past six months senior project engineer in central engineering, succeeds Mr. Sutter as chief group engineer for the department's Painesville section.

At his new post, Mr. Dupont will be responsible for manufacturing operations at Diamond Black Leaf plants in Richmond, Va.; Louisville, Ky.; Montgomery, Ala.; and Waco, Texas. These operations include formulation at these locations of pesticides in powder pellet and liquid form for use by home gardeners and commercial growers, as well as extraction of nicotine and production of nicotine-based insecticides at Richmond and Louisville. The four plants employ about 250 production personnel.

Mr. Dupont was graduated in 1934 from Purdue University, Lafayette, Ind., with a B.S. degree in chemical engineering. He joined Diamond in 1940, and since then has served the company in various engineering capacities, including three years as manager of the Central Engineering Dept.

Mr. Sutter, Diamond's new assistant director of engineering, is also a veteran of 15 years service, during which period he has handled a number of special engineering assignments for Diamond, the latest prior to his present promotion being that of chief group engineer for central engineering's Painesville staff since October, 1954.

In succeeding him as chief group engineer for the department at Painesville, Mr. Loeffler assumes direction of a staff of 35 engineers, draftsmen and clerical personnel handling major engineering assignments for Diamond's Painesville plant.

American Potash Wins Safety Award

LOS ANGELES—American Potash & Chemical Corp. has been presented the award of honor by the National Safety Council for the company's safety record set during 1954. This is the Council's highest award.

The 1954 accident rate was the lowest in the company's history and was 89% lower than the Safety Council's so-called "par accident rate." The rate is set by a system of computation based on the particular company's previous accident rate and the accident rate for the chemical industry as a whole.

In achieving the mark, American Potash & Chemical Corp. held lost-time accidents to a low frequency of 1.1 as opposed to the par rate of 5.0.

New Insecticide

SAN FRANCISCO—A new insecticide in powder form has made its appearance in California, manufactured by Wilco of Los Angeles. It is known by the trade name of "BIF Insecticide Powder" and contains DDT, chlordane, and pyrethrins. It is being advertised under the slogan "The H-Bomb of Insect Powders."

Harry C. Moore Retires from Armour

ATLANTA — Harry C. Moore, director of purchases (fertilizer materials) of Armour Fertilizer Works has announced his retirement, after 47 years of service, effective April 1, 1955.

Mr. Moore started in 1907 as assistant chemist in the Atlanta Division Laboratory of Armour Fertilizer Works and became chemist in charge of this laboratory in 1908. In 1920 he became chief chemist of Armour Fertilizer Works and director of chemical control.

In 1926-27 Mr. Moore began the commercial ammoniation of superphosphate and fertilizers using ammoniacal liquor (B-grade liquor containing 25% to 30% NH_3) and followed later by anhydrous ammonia and ammonia (nitrogen) solutions.

In this early work mineral acids, sulfuric and phosphoric, were also used with ammoniacal liquors to make granular fertilizers. Several patents were issued in his name covering these various processes.

In 1938 Mr. Moore became director of purchases (fertilizer materials) and later was named vice president of Armour Fertilizer Works and also assistant vice president of Armour & Co.

Specialist in Grain Sanitation Named

WASHINGTON—The U.S. Department of Agriculture has announced the temporary appointment of Clyde C. Noyes, Lincoln, Neb., to the Federal Extension Service, effective March 1.

C. M. Ferguson, administrator of the extension service, said Mr. Noyes will join with USDA specialists in assisting the state extension services in an intensified educational program on grain sanitation. He will be on leave from the University of Nebraska, where he has been state leader of extension programs.

2,4-D Reduces Orange Splitting, Say Scientists

BERKELEY, CAL. — Splitting of oranges while still on the tree can be reduced up to 60% by spraying with 2,4-D, according to two University of California scientists, Dr. W. W. Stewart and Dr. L. C. Erickson.

The scientists warned growers using the sprays to avoid excessive quantities since too heavy an application of 2,4-D can harm fruit quality and possibly harm leaves. Although the chemical does not harm the internal quality of the orange, excessive applications can affect the appearance of the skin, the two researchers report.

TEXAS WEEDS

AMARILLO, TEXAS—Two of the state's worst weeds, bindweed and blueweed, now occur on 42% of the farms in the Texas Panhandle, says Dr. Allen F. Wiese, specialist at the Amarillo Experiment Station.

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INSECT, PLANT DISEASE NOTES

— 1954 CORN BORER DAMAGE HITS $261 MILLION — SEE PAGE 22 —

USDA Warns Against Yellow Clover Aphid

WASHINGTON, D.C. — Yellow clover aphid is damaging alfalfa in south central Oklahoma and parts of Texas and Arizona, the U.S. Department of Agriculture reports. This pest seriously damaged alfalfa for the first time last year, in New Mexico, Arizona, Nevada, and California. Previous to 1954 this aphid, though found extensively on U.S. clover, had caused little economic damage.

Some alfalfa fields in Oklahoma have already been severely damaged this spring. The pest is building up rapidly in many alfalfa and clover-growing areas of Texas. North central Texas alfalfa is heavily infested. Hamilton, Denton, McLennon, Falls, Brazos, and Burleson counties report damage. In southern Arizona, the insects are on the increase on alfalfa.

New Mexico, the state hardest hit by the pest in 1954, suffered an estimated $4 million loss in alfalfa production last year. The aphid killed about 90% of spring-seeded stands and about 75% of the preceding fall-seeded stands in the Pecos Valley of that state.

It reduced the number of years an alfalfa stand will last in that area from four years to about two. Indications last fall were that it might be New Mexico's No. 1 insect pest again in 1955 if conditions favor its build-up. Losses in Arizona in 1954 were estimated at $500,000, and in California at $337,900.

Satisfactory control measures have not yet been recommended generally, but research on the problem is going on in infested states. Insecticides that control other aphids (such as malathion and parathion) have been effective against yellow clover aphid, but repeated applications are necessary to prevent reinfestation.

Insects Active In South Carolina

CLEMSON, S.C.—The first report of army worm damage has been noted on oats in Beaufort. Berkeley County reports root stalk and ear rots of corn last season from open-pollinated poly-adapted varieties. First report of tobacco blue mold in Dillon County was on March 15.

Reports of peach crown gall indicate serious situation exists with regard to infection of peach nursery stock. Peach bacterial spot spring cankers noted. Cabbage aphid infestations heavy with control generally practiced, but with unsatisfactory results in some instances.

Vegetable weevil larvae abundant and causing light to moderate injury to turnips, mustard, and spinach. First reports of potato bugs for season have been received. Diamond-back moth infestations are light but increasing in some untreated fields. First reports of hornflies for season have now come in.

Virginia Looks at Pest Situation

BLACKSBURG, VA.—Green June beetle larvae are active in pastures in Greensville and Surry, and are causing damage to lawns in Princess Anne and Norfolk. The beetle larvae likely will cause severe damage to pasture this year. Bulb mites are troublesome on jonquils in Southampton.

The southern pine beetle caused severe tree-killing in Virginia in 1954, and unless infestations are reduced by natural control factors losses are expected to continue this year. Additional buildup of beetle populations likely will occur in trees blown down during Hurricane Hazel.

Japanese beetle populations will be up this year, if grub counts in small diggings in southeastern Virginia are any indication.

There wasn't much trouble from stored grain insects through February in the southeastern counties, but activity will soon increase. Damage probably won't be significant until the middle or last part of May.—Arthur P. Morris.

Delaware Reports Pest Situation

NEWARK, DEL.—Recent surveys on alfalfa and clovers show that the alfalfa weevil is active, and the bristly cutworms are prevalent in alfalfa from Newark to Smyrna. All larval stages of the clover leaf weevil are present generally on red clover, small to half-grown larvae of the lesser clover leaf weevil are numerous in both New Castle and Kent Counties, and clover root curculio adults were observed at most locations.

To date, pea aphid is scarce, and spittlebug eggs have not hatched.

To control alfalfa weevil, treat at once with dieldrin at the rate of 1½ pints (emul. conc.) in not less than 25 gal. water an acre. If application is delayed, substitute heptachlor at the rate of 1 pint. This material is safe for use throughout April and early May.

Either dieldrin or heptachlor, properly applied, will control spittlebug as well. Should aphids appear, add malathion, 1½ pints.—L. A. Stearns and J. W. Heuberger.

Kansas Reports on Insect Conditions

MANHATTAN, KANSAS — No greenbugs or other aphids were found in any of the wheat and barley fields that were examined in the following counties: Riley, Clay, Washington, Republic, Cloud, Mitchell, Lincoln, Ottawa, Dickinson, and Geary.

Few army cutworms were observed in any of the wheat, barley and alfalfa fields that were examined in counties of north central Kansas. Highest observed

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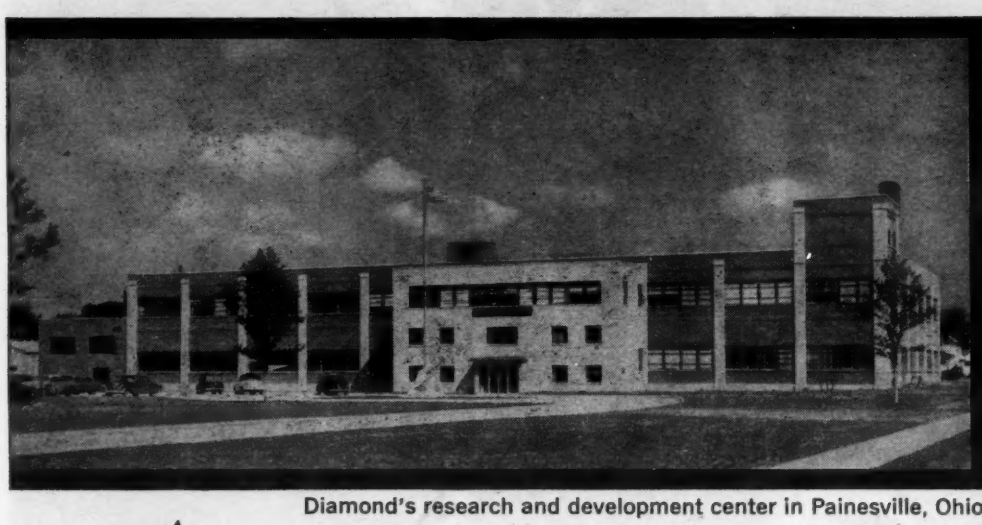

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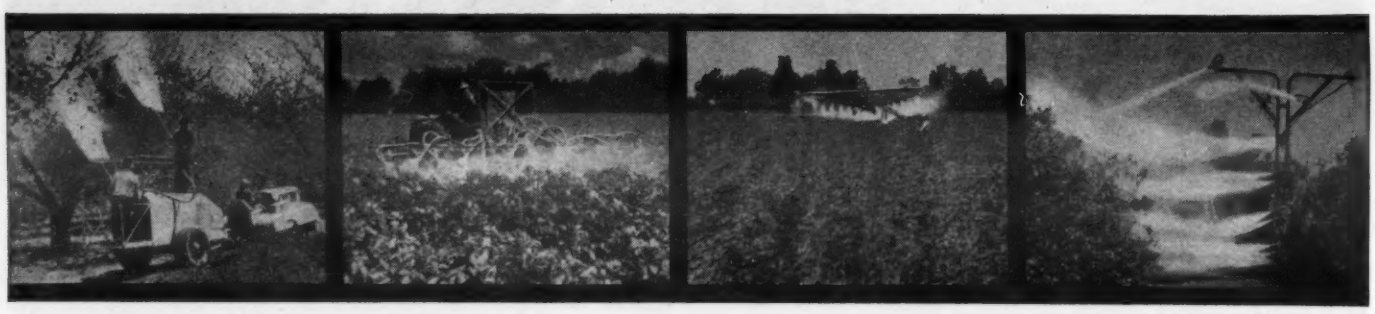

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festations gave counts of only one larva per six feet of drill row.

Infestations of the smaller European elm bark beetle were observed in northern Clay County near Moorganville. Several large elms in this area were heavily infested.

(No formal survey was made in Kansas during the week ending March 25. Extremely cold weather that brought high winds and snow to most of the state prevented field observations.)

Weevils, Cutworms in Maryland

COLLEGE PARK, MD. — Alfalfa weevil adults are showing activity in Montgomery County. Pea aphids and grubs of the clover leaf weevil are present in light numbers. Spraying time for the weevil is drawing near. We recommend two sprays for alfalfa. Use 1½ pt. heptachlor in at least 15 gal. water for the first spray; for the second spray use heptachlor, or if pea aphids appear, use malathion.

Cutworms will probably trouble many crops this year as they did last year. Control them with toxaphene before planting the crop.—Thomas L. Bissell and Wallace C. Harding.

Pests Getting Under Way in Florida

GAINESVILLE, FLA.—Highlights in the insect picture in northern Florida included information that vegetable weevil was reported on tobacco plants from the Hastings area for the first time this year; and the first adult wireworm was collected at Hastings. This wireworm feeds on potatoes. Two new state records of syrphids were reported from the Gainesville area.

In the Southern portion of the state, Colorado potato beetle was reported for the first time this year at Havana, feeding on potatoes. The first season's report of the Mexican bean beetle feeding on pole beans was made from Havana. — H. A. Denmark.

Connecticut Reviews 1954 Pest Records

NEW HAVEN, CONN. — Insects and diseases which were more prevalent than usual in Connecticut during 1954 included the gypsy moth, tobacco blue mold and potato late blight and tuber bacterial rot, according to reports by entomologist Neely Turner and plant pathologist Dr. A. E. Dimond of the Connecticut Agricultural Experiment Station here.

The gypsy moth was considered the most destructive insect in the state in 1954. The insect threatened defoliation to 200,000 acres of woodland. About 133,000 acres were sprayed as a preventive measure, with the result that only 200 of the sprayed woodland acres were damaged seriously by the gypsy moth.

The army worm, which had a general outbreak in northern New England, was present in only a few places and did relatively little damage.

Corn ear worms were more destructive than usual as might have been expected after a relatively mild winter.

According to Mr. Turner, the other notable feature of the 1954 season was the continued indication of resistance of the potato flea beetle and the imported cabbage worms to DDT. Both of these pests were more difficult to control with DDT than in previous seasons.

Weather conditions were ideal in late spring and early summer for the development of blue mold on tobacco in the field on shade tobacco. In some cases it occurred on stalk.

Late blight on potatoes in late summer with heavy fall rains also caused concern to growers. Outbreaks did not occur early enough to cause serious field losses, but it presented a problem as a cause of tuber rot in storage after harvest if left unchecked.

Growers found unusual amounts of tuber rot of bacterial type caused by heavy rains during fall hurricanes during potato harvest.

Pesticide Research Group To Meet at Clemson

CLEMSON — The technical committee of the Southern Regional Research Project S-22, "Pesticide Residues," will hold its annual meeting at Clemson College April 5-6.

The primary objective of the committee is the determination, sampling and effects of pesticide residues on plants and soils. The committee is composed of representatives from the agricultural experiment stations of South Carolina, North Carolina, Florida, Puerto Rico, Arkansas, Texas, and the Crops Research Branch Agricultural Research Service, U.S. Department of Agriculture.

CROP VALUE

FARGO—Soybeans brought the greatest dollar return per acre of the grain and oilseed crops in North Dakota during the past five years.

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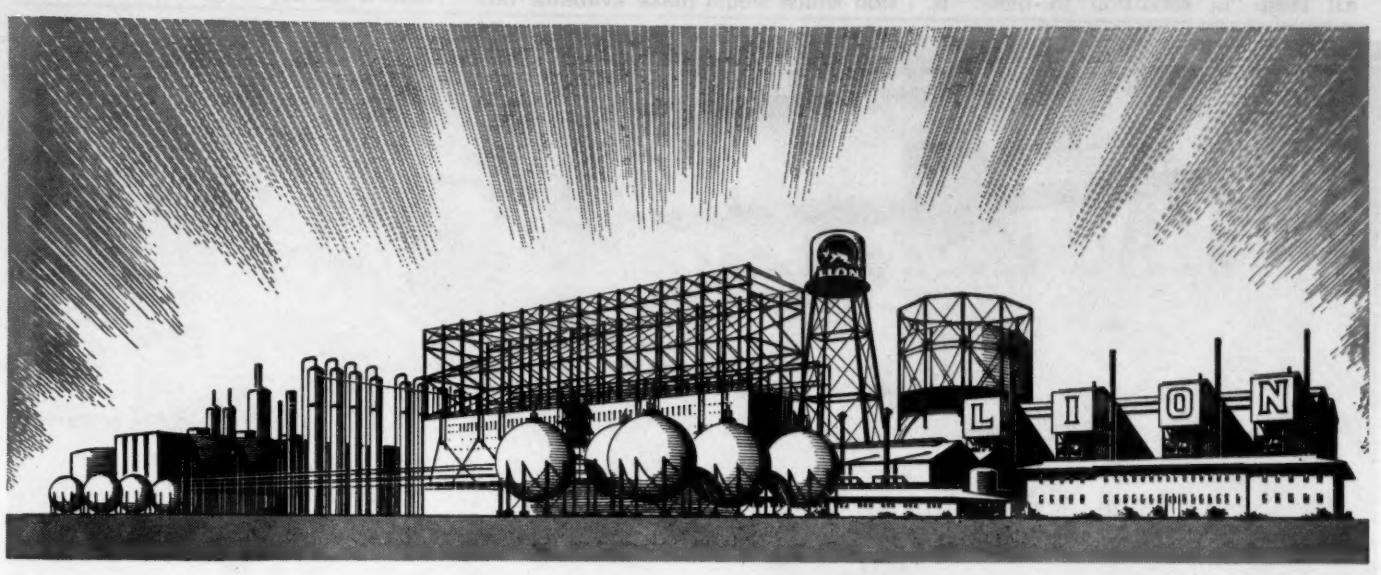

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✓Advertising Helps Create the Demand

As a retailer, you'll find it to your advantage to sell Lion nitrogen fertilizers, because Lion's manufacturing capacity and storage facilities assure a ready supply of top-quality materials, and Lion's consistent advertising *pre-sells* the Lion brand.

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- Prairie Farmer
- Progressive Farmer
- Wallace's Farmer & Iowa Homestead
- Leading State Farm Publications

DISTRICT SALES OFFICES:
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SHEPHERD BUILDING, MONTGOMERY, ALABAMA

LION OIL COMPANY
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7 Million Acres Damaged by Wind In Great Plains States, USDA Says

WASHINGTON—Nearly two million acres of land in the Great Plains were damaged in the severe wind storm of March 10-11, bringing the total land damage in this region since November, 1954, to about 7 million acres the Soil Conservation Service reported March 25.

Most of this damage has taken place in Colorado, Kansas, New Mexico, Oklahoma, Texas, Nebraska and Wyoming.

Nearly four-fifths of the estimated land damage has occurred on cropland that is inadequately protected by vegetative cover. SCS field representatives have estimated that in addition to land already damaged, about 18 million acres have insufficient stubble, grass or other vegetative cover to protect the land against blowing if severe windstorms like that of March 10-11 recur. Three-fourths of all land "in condition to blow" is cropland, and half of that is in wheat which has not made sufficient growth to provide ground cover.

Farmers in the area have carried out emergency tillage on more than a million acres of blowing land, SCS said. This operation provides some protection by roughing up the land surface but is only a temporary measure. Wind-resistant cover crops, planted as soon as moisture is available, provide the only satisfactory protection against blowing on these bare lands.

Fifteen million dollars was appropriated last year to help repair the damage from the severe dust storms of February, 1954. A little over half of these funds was used, and the balance of about $7.1 million was returned to the treasury.

As reported earlier, the President has recommended emergency legislation which would make available this $7.1 balance for emergency dust bowl work this year, and this legislation was approved by the House of Representatives March 18.

In line with its policy, USDA spokesmen said, the department will continue to use all appropriate agencies and authority to help farmers and stockmen solve their drouth and wind erosion problems.

Tomato Day

DAVIS, CAL.—Breeding nematode resistant tomatoes, and other disease resistant tomatoes was the subject of Tomato Day, held at the University of California campus here recently. Paul G. Smith discussed the nematode problem and G. C. Hanna talked about other types of disease resistant tomatoes. W. Harry Lange discussed the tomato grower and recent pesticide legislation. The day was devoted entirely to reports by these and other researchers on the tomato problems. Approximately 300 growers, processors and shippers attended the day long sessions.

Pfizer to Sponsor Study of Effect of Antibiotics on Tobacco

COLUMBUS, OHIO—John E. McKeen, president of Chas. Pfizer & Co., Inc., of New York, has announced the award of a research grant to explore the possible uses of antibiotics to reduce the nicotine content of tobacco.

Dr. Louis G. Nickell, plant physiologist with the Pfizer company, announced the grant at the 20th annual National Farm Chemurgic Conference here on behalf of Mr. McKeen.

The grant will be made to a leading university research center. Funds will be used to study the metabolism of growing tobacco plants as affected by antibiotics and to attempt to modify the alkaloid production of the plants. Nicotine is an alkaloid of the tobacco plant.

The project will be conducted concurrently with research at the Brooklyn plant and the Pfizer Agricultural Research Farm in Terre Haute, Ind. Dr. Nickell, who reported the research grant in connection with his paper, "The Future of Antibiotics in Agriculture," explained that Pfizer currently is spending approximately $1 million annually in agricultural research.

Dr. Nickell reported on the possibility that antibiotics can be used to raise or lower the amount of nicotine in tobacco when applied to the growing plants. He said that there is already evidence that antibiotics can alter the metabolism of growing plants and affect their production of alkaloids. Since nicotine belongs to this class of chemicals, it is anticipated that antibiotics similarly may affect the nicotine content in tobacco he said.

"A change in alkaloid content, either decreased or increased, could be utilized to good advantage," he said. "For example, if the change were a decrease in yield, this would be desirable if the plant were tobacco since it would have a lower nicotine content. If the change were an increase, this would be desirable if the plant were a drug producer."

The Pfizer scientist cited a recent study made by Swiss Dr. E. Steinegger, which showed that penicillin has a profound effect on plants of the nightshade family, from which a drug similar to belladonna is extracted. The antibiotic increased the plants' growth and selectively modified their alkaloid production.

Dr. Nickell stated that there is already ample evidence that other plants are affected in their growth and metabolism by the presence of antibiotics such as terramycin and penicillin.

Turning to the problem of plant disease control, Dr. Nickell said that many bacterial plant plagues such as wildfire and blue mold on tobacco can be successfully treated with a spray combination of two antibiotics called Agrimycin, and predicted that other wonder drugs will be developed for use as fungicides, herbicides, defoliants and insecticides.

"The field of fungicides is of vital importance in agriculture," Dr. Nickell declared. Antibiotics are of particular interest in this field, because they often act in concentrations of as little as one or two parts of antibiotic per million parts of vehicle, added.

The Pfizer scientist also predicted that antibiotics will be useful in the prevention of spoilage in vegetables, meat, poultry and fish, including shellfish.

KENTUCKY FIRM ORGANIZED

PIKEVILLE, KY. — The Farmers Feed & Supply Co. has been incorporated here by Dr. W. F. Clarke, W. T. Hatcher and J. B. Fortune.

STRAFING MISSION

The pilot, guided by his partner on the ground, is completing a strafing run on a rice field—with granular fertilizer as ammunition. Granular fertilizer is uniquely suited for this aerial operation, since the weight of the pellets carries them straight to the target in spite of wind and unsettling weather.

Potash, an important component of balanced fertilizers, enriches the soil, improves crop quality, builds resistance to disease and increases product yield. United States Potash Company's high-grade muriate of potash is tailor-made for granular fertilizer production for these reasons—highest K_2O content . . . ready solubility . . . fine uniform grain size . . . free-flowing . . . clean white color.

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Ralph Wechsler Named President of NOPCO Chemical

HARRISON, N.J.—The election of Ralph Wechsler of Maplewood, N.J., as president has been announced by the board of directors of Nopco Chemical Co., Harrison, N.J. He will succeed Thomas A. Printon, president since 1949. Mr. Printon will continue to serve as chairman of the board.

Prior to election as president, Mr. Wechsler had served as treasurer. He has been connected with the firm since 1921 when he joined the company as a chemist. A few years later he became chief chemist and was responsible for manufacturing operations. He was elected to the board in 1927 and in 1932 became treasurer. He will also act as chief officer of Metasap Chemical Co., a wholly owned subsidiary.

Mr. Wechsler was graduated from the College of the City of New York in 1916 with a B.S. degree in chemistry.

Shell Agricultural Chemicals Division To Move to New York

NEW YORK — Shell Chemical Corp.'s Agricultural Chemicals Division will move its headquarters to New York City from Denver, Colo., around May 15, L. V. Steck, vice president in charge of marketing, has announced. The division is the sales organization for the corporation's insecticides—aldrin, dieldrin and endrin —and the soil fumigants—D-DR and Nemagon.

While the plant for the manufacture of the insecticides will remain in Denver, the transfer of the sales division, under direction of F. W. Hatch, is designed to insure greater access to national markets and will afford better coordination of the various marketing activities, Mr. Steck said.

District sales offices in Atlanta; Jackson, Miss.; Houston; New York; San Francisco and St. Louis will continue to operate under the division. The new offices for the division will be located at 460 Park Ave.

Dan Donoher

NAMED BY VULCAN — Dan Donoher has been appointed New York representative for Vulcan Steel Container Co., Birmingham, Ala., according to announcement made by Gordon D. Zuck, company president. Mr. Donoher is a graduate of University of Buffalo. He started in the container business in 1940, spent two years in the Chicago area, three years in New Orleans and ten years in the metropolitan New York area. Headquarters office is in Bloomfield, N.J.

Freezing Weather, Floods Damage Mid-South Crops

MEMPHIS—Losses from unseasonably cold weather in the Mid-South mounted into the millions as farmers began to examine damage to fruit trees, truck crops and home gardens.

The weekly report from the extension officials of Arkansas, Mississippi and Tennessee, showed heavy damage was suffered by farmers from the freezes and from floods which preceded the cold weather.

A record-breaking low of 18 was recorded here, with temperatures in the surrounding area even lower in some instances.

In Mississippi, Chesley Hines, extension horticulturist, reported heavy damage to truck and fruit crops from the freeze and losses of cattle and farm equipment from the floods. The raging waters struck in the Tombigbee watershed in northeast Mississippi.

In extreme South Mississippi, a tung crop, originally estimated at five million dollars, has been hard hit, the horticulturist said.

Cutworms are doing serious damage to stands of young corn in South Mississippi, said A. G. Bennett, extension entomologist. These worms also are showing up in legume pastures of the Mississippi Delta.

Winter cracked down twice on Arkansas farmers to wipe out practically all prospects of a peach crop in the north part of the state and to cause considerable damage to early-planted gardens and other crops.

Arkansas peach losses were estimated at four million to five million dollars by Earl J. Allen, Extension horticulturist at Fayetteville. He also reported strawberries, blackberries, boysenberries, youngberries and tomato plants all destroyed, and grapes and apples damaged.

Small grains were damaged and oats were "looking bad." Damage to wheat probably was great, since it had been pointing, officials said.

Desert Control on Conference Agenda

LAS CRUCES, N.M. — When the International Lands Conference and Symposium meets in Albuquerque in April, one of the chief aims will be to establish an international commission on desert control. The commission would make a detailed study of desert and arid land conditions throughout the world and try to solve the agricultural problems found in these regions.

One part of the study would be turned over to the land grant colleges in order that they might carry on a research program in certain designated areas.

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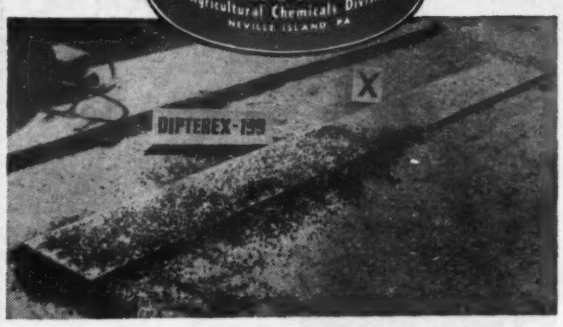

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Limestone Institute Official Warns of Soil Depleting

MEMPHIS—Soil is being depleted faster in this nation than in China and India, countries which are unable to feed their own people, members of the Memphis Agricultural Club were told recently.

Robert M. Koch, executive secretary of the National Agricultural Limestone Institute, said hazards of an exhausted soil and an increasing population are being fought by experiments in soil replenishment.

"Leading agronomic authorities of the nation estimate that 80 million tons of agricultural limestone should be used annually," he said.

However, the annual usage has never exceeded 30 million tons and in 1953 dropped to 20 million tons. The annual need in Tennessee is about 2,625,000 tons as compared with the 408,351 tons used in 1953, Mr. Koch told members.

Mr. Koch said Arkansas used only about 20% of agricultural limestone recommended and Mississippi only about 5%.

The Agricultural Limestone Institute is cooperating with the Mississippi State College in limestone research.

Mr. Koch said demonstration plots are being laid out on Sen. James O. Eastland's farm near Ruleville, Miss., using limestone in zero to 10 tons to the acre in crops such as cotton, corn, alfalfa, clover and grasses.

IRRIGATION SPECIALIST

LUBBOCK, TEXAS—Robert Thurmond, associate agricultural engineer, has been promoted to state irrigation specialist for the Texas Extension Service. His new headquarters will be at College Station where his services will be available to irrigation areas throughout the state.

F. S. Swackhamer Named President-Elect of CCDA

NEW YORK—F. S. Swackhamer, Shell Chemical Corp., has been elected vice president for 1955 and president-elect for 1956 of the Commercial Chemical Development Assn.

R. L. Bateman, Carbide and Carbon Chemicals Corp., is completing his term as CCDA vice president this year and will serve as the association president for the year beginning July 1, 1955. He succeeds Nolan B. Sommer, American Cyanamid Co.

J. M. Rogers, Minnesota Mining and Manufacturing Co., and J. R. Dudley, Carwin Chemical Co., were re-elected treasurer and executive secretary. Elected as directors for 1955-57 are W. H. Bowman, Jefferson Chemical Co., and H. I. Cramer, Sharples Chemicals, Inc. Other CCDA directors are F. E. Dolian, Commercial Solvents Corp., and L. E. Johnson, Genessee Research Corporation, a subsidiary of Olin Mathieson Chemical Corp.

Cold Wave Causes Severe Damage to Crops in Georgia

ATLANTA — Georgia farmers, struggling to overcome effects of the worst drouth in history, were dealt a crippling blow by the late spring cold wave.

Reports from over the state indicate that the Georgia peach crop, valued at $10,000,000 is a complete loss.

The North Georgia apple crop is also thought lost as were early plantings of corn, watermelons, beans, tomato plants and young cabbage in South Georgia.

Agronomists say the spring grain crop may have been cut 25% or more. An estimate of total damage is difficult to obtain as reports are not in from all the state's 159 counties.

It is not known just how bad the tobacco crop was damaged. John Preston, extension service tobacco specialist, estimated that 25 to 30% of the multi-million dollar tobacco crop had been planted when the cold wave struck. Most of these plants were set out within a few days of the cold wave, and agriculturists fear damage may have been severe.

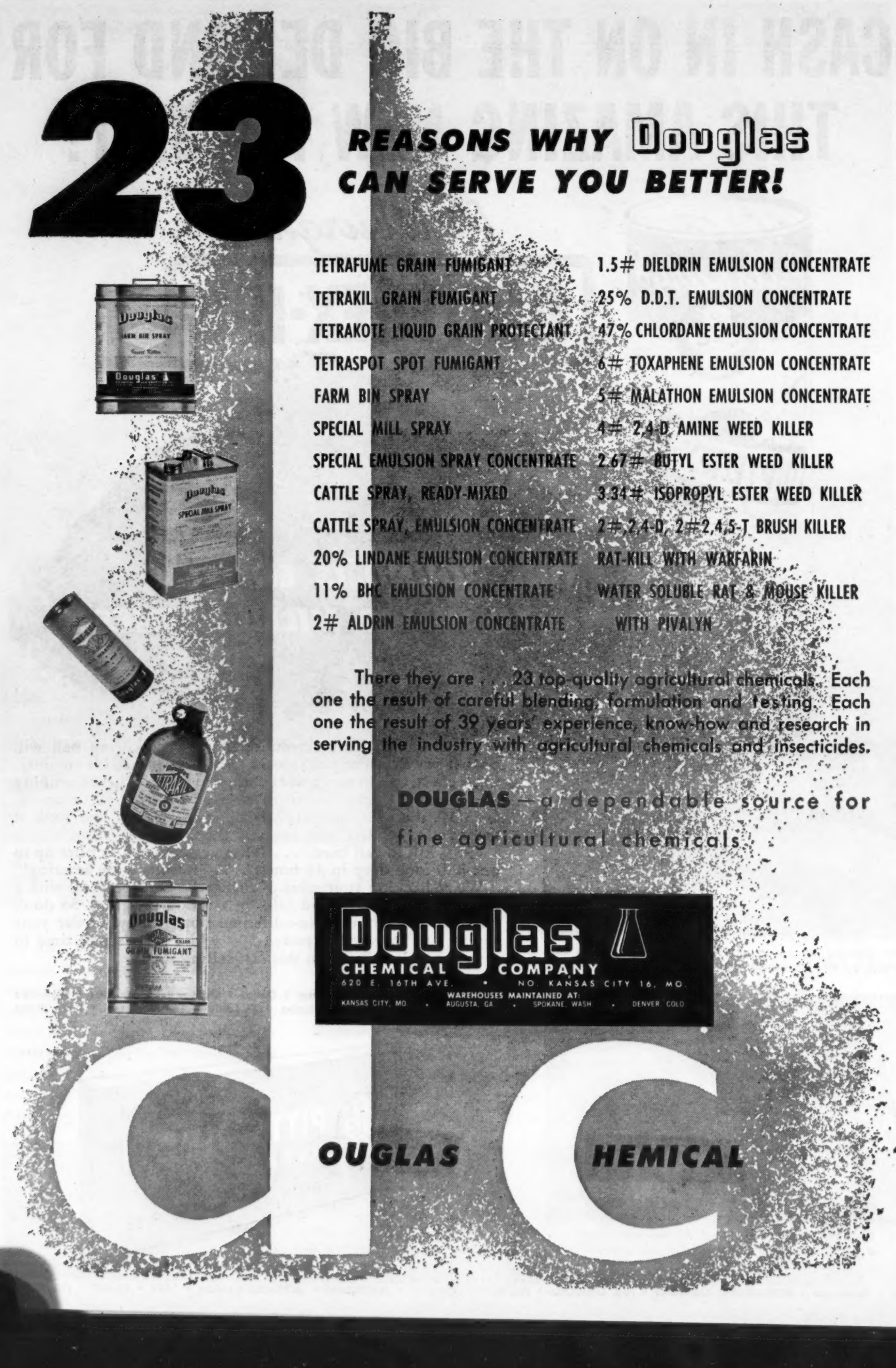
The coldest weather ever recorded this late in the spring descended on Georgia March 26 and remained well into the following week.

International Paper Sales Hit New High

NEW YORK — Earnings and sales by International Paper Co. and its subsidiaries during 1954 were at record levels, it was reported recently by John H. Hinman, chairman of the board, in the company's 57th annual report to shareholders.

The report shows total earnings after taxes of $73,489,746 including $6,014,162 from extraordinary non-recurring items, as compared to 1953 earnings of $63,935,478, including extraordinary items.

Mr. Hinman pointed out that a major factor in the improved net earnings was the substantial reduction of the tax burden through expiration of the U.S. excess profits tax and a reduction in the amount provided for current taxes. Operating profits before income taxes were down $2,712,883 from 1953, but provision for taxes based on income totaled $68,971,052 as compared with $80,617,001 in 1953.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A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW

SHOP TALK OVER THE COUNTER FOR THE DEALER

By EMMET J. HOFFMAN
Croplife Merchandising Editor

A veteran retailer of fertilizer and farm chemicals, speaking informally the other day, remarked that in his opinion a very successful retail business can be operated in any community that has an average agricultural background.

To build it, he avowed, the retailer must do it on his own, with just a little help from the suppliers. He will not become indispensable, he said, but as nearly so as it is possible to become. It isn't easy. He'll have to study his lesson and he'll have to work hard, this experienced salesman said.

He continued: "The more he learns and the harder he works the more he will like it. He will like it because he will be making money, but he will like it over and above the profit angle. It will become increasingly interesting — more pregnant with challenge—wider of horizon—and more soul satisfying with accomplishments."

"It isn't necessary to be an agronomist in order to be a very successful money making retailer. Your supplier's agronomist will handle those problems for you. In proportion to their need by the industry, agronomists are more plentiful by far than good retailers," was his claim.

Real Competition

"Don't feel you have stiffer competition than any one else. The real competition is poor farm and crop management, poor use of your products, and the poor presentation of your story you might make. Those are not serious troubles. They are problems which the retailer can solve for himself. If the retailer does not earnestly try to solve them, he is helping his competition."

The old-timer suggested that every retailer learn as much as possible about good farm management. There are many sources: the state agricultural college, the supplier, the county agent, the bank's agricultural representative—and above all, the successful fertilizer and farm chemicals user.

Use a Check List

If fertilizer isn't doing as well as the farmer had hoped, the retailer should have a systematic check list on proper management. What is the soil pH? What is the rotation history? Did the weather play a vital factor in the crop's outcome? Somewhere lies the explanation.

"Don't be a lone wolf," he said. "Foregather with your kind in local and state meetings. Be a working member of your trade association. You learn things and make friends. You never know too much about your business nor ever have too many friends. Don't be afraid to try to sell a prospect. Once his need is established and you can fill his need, then it is your bounden duty to try to sell him. He needs you."

These words, coming from a successful salesman, may have been said before but may be repeated again and again without becoming outdated. For sound words of advice never become outdated.

The days are getting longer. It has been over three months since the shortest day of this winter. Soon every golf course will be green.

Grass is a crop too, and do you know it pays to have grass and legumes eating at the first table? Too many farmers make the pastures and hay fields "wait," and usually it's "necks" and "wings" for them.

Smart farmers are fertilizing pastures and clipping coupons via meat and milk checks.

A bright young chap in our county with only 52 acres to call crop land, and only 55 acres in the entire farm —pretty good soil—used to grow five acres of corn. However, the last time he grew corn he produced 125 bu. per acre. He decided he could not afford to grow corn, so he seeds five acres to fescue, orchard grass, ladino clover and alfalfa (hold your breath), and applied 3,600 lb. of 2-15-15 fertilizer per acre at seeding time (Aug. 25, 1949).

I told him he was crazy. He smiled. On Oct. 1 he turned his 25 milk cows into this pasture and kept them on it 60 days without taking them off. He was getting $5.60 cwt. for 4% milk and by Dec. 1 he had netted about $200 per acre, after paying every expense.

Dealers over the country are acquainted with many farmers with many acres diverted from other crops. They could be sold to seed grass and legume mixtures, using 300 to 600 lb. of a 10-10-10 per acre while other areas might use 400 to 800 lb. of a 5-10-20 and others will need only 30 to 75 lb. of N to ring the bell.

It's been a cool spring, but I'll bet you there are many wise old bugs lying low, but planning how they will organize for a drive on Mr. Farmer soon. Alert dealers are ready for the attack with insecticides.

Sound Merchandising Program With Dry, Liquid Fertilizer Pays Off for Indiana Dealer

By AL. P. NELSON
Croplife Special Writer

When Ed Standish and Max Hungerford formed Green-Way, Inc., Shelbyville, Ind., two years ago, and began selling anhydrous ammonia after the installation of a plant, they discovered that a pioneering period was necessary. In other words, while farmers were interested in anhydrous, they wanted to test out small plots of land for one year or more to see what it would accomplish.

Thus, to balance their business, they began manufacturing dry fertilizers, and selling in the immediate territory. They found that this program worked out very well. They were able to sell both liquid and dry fertilizer in sufficient amounts to keep their business expanding.

During 1954 up to Dec. 1, this Indiana firm has fertilized about 17,000 acres with either dry or liquid fertilizer, and the owners envision quite an increase in 1955, says Ed Standish.

At the present time the firm has a storage capacity of 60,000 gal. anhydrous ammonia. They have one 30,000-gal. tank, as well as a number of 6,000-gal. ones. Several custom applicators of liquid fertilizer come here to get their supplies, and the fertilizer company contacts these men when customers want applicating service.

There are some farmers in the area who have their own applicating outfits for liquid fertilizer, and the tendency to buy such outfits appears to be increasing, reports Mr. Standish.

"We find that one of our best selling points on both liquid and dry fertilizer is to advise farmers to follow the state agriculture recommendations for fertilizing crops and pastures," declares Mr. Standish. "This approach has helped us work up many farmers to a fertilization rate which gives a lot of increased productivity."

He states that some farmers will use only five to six tons of fertilizer on 200 acres, while others use vastly more. One farmer with 400 acres of crop and pasture land used 125 tons of dry fertilizer during the past year.

Mr. Standish reports that farmers in his area have a deep interest in fertilizer, but that if a dealer wants to hold a fertilizer educational meeting he must plan it properly or he will have a small attendance. The Green-Way firm held six such meetings during the past year. Two were excellent from the standpoint of attendance while four were only fair.

"In addition to newspaper and direct mail advertising on these meetings we now use personal contact," states Mr. Standish. "We have a man in the field who visits farmers and talks over fertilization needs with them. When we have a meeting coming up he personally talks it up with everyone he calls on, and this seems to boost attendance."

The average farmer is a busy man and he receives notice of many meetings in the mail. Therefore, unless he marks such meeting dates on the calendar, he has a tendency to forget some of them, states Mr. Standish. However, those farmers who come to a fertilizer meeting, do get a great deal out of them, and many such attendants become good customers. Some of them even become good disciples for better fertilization in their neighborhoods.

"Our experience has shown us that in our territory there is no substitute for getting right out on the farm and talking with prospects and customers about fertilizers," says Mr. Standish. "This type of personal attention is appreciated by farmers and we can better advise them what types of fertilizer to use when we know their individual setups."

Mr. Standish points out that this is the age of "prescription farming" and that the testing of soil is very important. His firm has been urging farmers to have soils tested, with the samples being sent to the state laboratory by the Green-Way firm. However, during 1955, Mr. Standish and Mr. Hungerford are planning to set up their own soil testing department. They feel that this will turn out to be of real service to farmers and that it will also be an excellent good will builder.

By having its own soil testing department, the Green-Way firm will be able to do the job faster. This speedy service is highly important, states Mr. Standish, especially during the rush season when the state lab is flooded with requests for testing and cannot get reports back for several weeks.

Last fall the firm began an advertising campaign to get more farmers to apply fertilizer in the fall months to ease the rush of spring work. This campaign resulted in the sale of quite a bit of fertilizer. Mr. Standish feels that this campaign can bear still greater results in 1955.

"We are going to continue holding dealers' meetings throughout the territory and also doing considerable advertising," states Mr. Standish, "because we don't want farmers to put off buying fertilizer until those few spring months when they used to buy it.

"We want to spread this ordering and delivery over more months of the year and we also want to show farmers it pays them to buy and use more fertilizer than they have in the past."

Quote

"Balance is the key word in fertilizing. A few years ago we thought all most Minnesota soils needed was a little phosphate. Today, on many of these same fields fertilizers not only must meet a larger part of the soil's potash hunger but must have nitrogen and phosphate." — Harold E. Jones, University of Minnesota extension soils specialist.

Doing Business With Oscar & Pat

It was that time of the month when a business man receives monthly statements. Oscar Schoenfeld, pudgy, balding partner in the firm of Schoenfeld & McGillicuddy, sat at his desk slitting open envelopes containing statements, his face as stern as Molotov's at a UN meeting, and a thoroughness in his manner as if he were looking for uranium.

Oscar was always in his glory when it came time to check bills. He watched dates, amounts, discounts and terms like a night club waiter watches for tips, and his facial expression changed many times within the course of a few minutes as good and bad news flowed from the information on those invoices.

Now Oscar, his lips grim, grabbed the telephone and gave the operator the number of a local office and stationery store.

"Let me talk to the bookkeeping department," he said tersely.

Pat McGillicuddy, the sales promotion minded partner, seated at his desk facing Oscar, smiled, as he made notes from a magazine article on insecticides. Leave it to good old Oscar to watch the firm's money. Nobody ever put anything over on Oscar, moneywise. Only danger was, he guarded the money so carefully there was a possibility some of it might get a little moldy from disuse and permanent storage.

"I've got a bill here for $9.76 for cardboard," Oscar said tersely. "There must be a mistake. We didn't buy any cardboard."

There was a moment of explanation from the other end.

"No," said Oscar, "I don't recall getting it. I tell you there has been a mistake. We won't pay it. It's hard enough to make money nowadays without having somebody try to collect from us for stuff we didn't get, and—"

"Wait a minute, Oscar," said Pat, suddenly waking from his note taking. "Cardboard! Why, I bought some cardboard from Calkins Office Supply. Don't talk to them like that."

Oscar's face went grimmer. "Excuse me," he said in clipped tones over the phone. "It appears we did get the cardboard. But if we pay it, we'll take a 2% discount. It doesn't say so on your statement, but we always take a discount regardless."

After Oscar put down the phone, he said to Pat, "Now, why didn't you tell me you bought that—that cardboard?"

Pat's blue eyes gleamed. "Do I have to tell you each time I buy a pencil or two or other supplies? Why don't you ask me about those bills before you call up people?"

"Why don't you spend less money?" Oscar countered.

Tillie Mason, the nervous bookkeeper, reached for an ulcer powder. She heard a storm threatening.

"Why do you cancel my farm maggazine subscriptions without asking me first?" Pat demanded angrily. Then he grinned. "You see, we both act on our own once in a while. We'll get along, if we just ask each other about these bills FIRST before blowing up."

"Cardboard," snapped Oscar, his blood pressure up to dangerous levels. "What do we want cardboard for? And $9.76 worth. That's enough to supply a public school."

"That bill also includes some sign painting brushes and inks," Pat said. "You didn't read it carefully enough. I have a good business use for those signs."

"Oh, posh!" burst forth Oscar. "Why can't you stop buying all this stuff for six months? We just get to the point where we are making some profit, and then you go spend, spend, spend for adverti and other silly stuff."

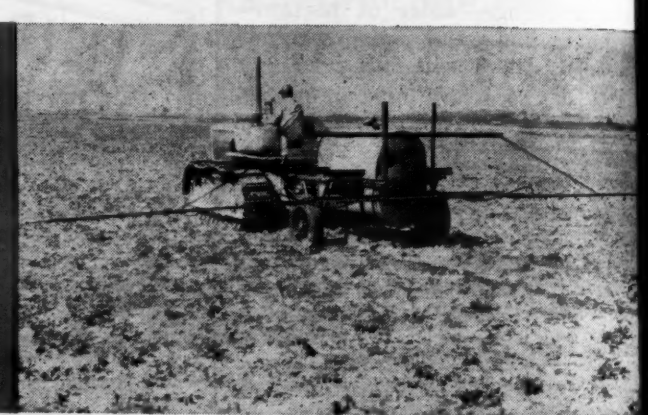
"It's not silly stuff," Pat s patiently. "The time to advert is when you're doing good busine so you can get more from a flu market. Then when business is po you have to advertise to, to stim late business. It pays, Oscar."

"Yeah, we pay, you mean!" grow the pudgy partner. "If we did have so many extra costs—thar to you—our bank balance would way up. Now what are you going use that expensive cardboard fo If you haven't used it yet, may we can send it back."

"We're not going to send it bac Pat said, a little angrily. "I've c it up and made some signs on

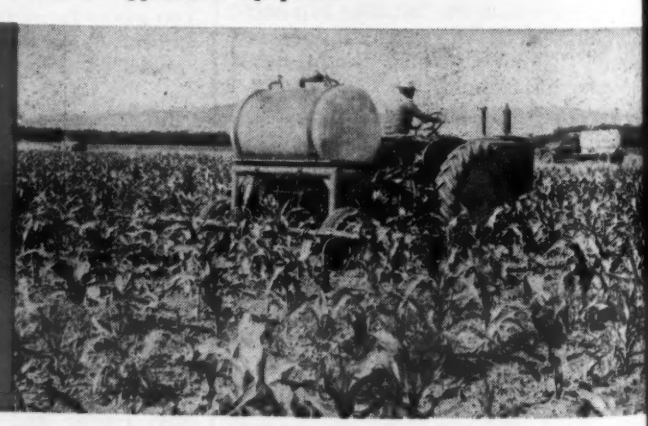
Moving ARCADIAN makes big-profit

The balanced fertilizer for modern crops, ARCADIAN 12-12-12 packs concentrated growing power in easy-lifting 80-pound bags. Every firm granule is complete plant food rich in nitrogen, phosphorus and potash. You handle less weight—farmers handle less—you both get more out of it.

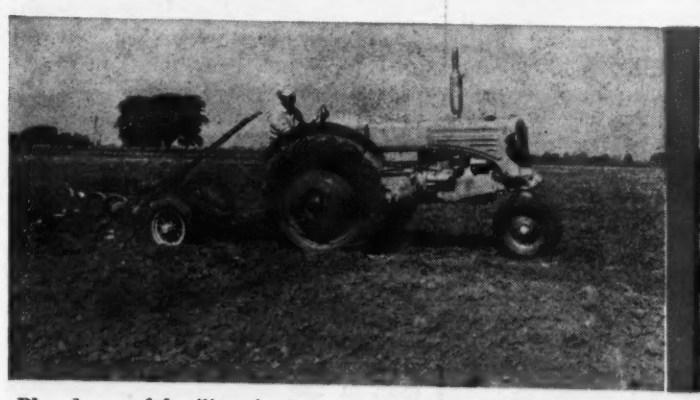


Spreading nitrogen on 100 acres per day is easy with new ARCADIAN low-pressure Nitrogen Solutions. A tractor tank with spray boom or dribble tubes does the job—with no bags for dealer or farmer to lift. Sell ARCADIAN Nitrogen Solutions *and* application equipment.

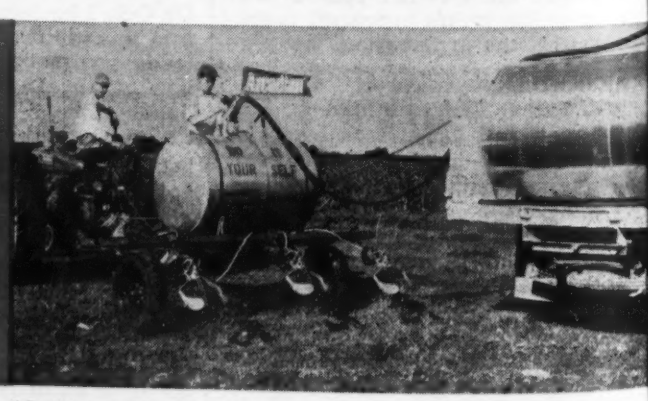
A labor-saver if there ever was one, ARCADIAN UREA 45 Nitrogen Fertilizer packs 45 pounds of nitrogen in every 100 pounds weight. It's the most concentrated dry nitrogen available, makes a good payload for you and the farmer.



Side-dressing 40 to 80 acres a day with nitrogen is easy with low-pressure ARCADIAN NITRANA® Solutions and is a fast-growing practice. Both NITRANA and application equipment are making big sales for handlers of the ARCADIAN line.



Plowdown of fertilizer is the way more and more farmers turn sod, stalks and straw into nitrogen-rich organic matter that builds bigger crops while it improves the soil. ARCADIAN products are ideal for this market that spreads fertilizer sales over the year.



Machinery does the heavy work for you as well as the farmer when you handle and sell ARCADIAN Nitrogen Solutions. They save labor and backaches, speed up handling, and build profitable new fertilizer and equipment business all in one.

dy. These signs are going to be d all through the store and on outside wall on the loading dock. got some of them right here."
t reached down, opened a big briefcase and brought forth cardboard signs. Each measured t 15 inches in width and 6 inches eight:
opy on the signs said: "1. FERIZER—Makes $10 an Acre Profit California Ranch (Clipping posted iling the headline).
. FERTILIZER — Helps Florida to Growers Produce 500 bu. poes per acre. (Posted clipping.)
. FERTILIZER—Helps boost cotcrops 22%.
. FERTILIZER — Helps Iowa mers Produce 200 bu. of corn per ." (Posted clipping.)
These signs will promote fertilibusiness," Pat explained. "We'll have a lot of these around so that wherever the farmer goes, inside or outside the store he'll see 'FERTILIZER . . . FERTILIZER . . . FERLIZER. . . .' That repetition will make him think about buying more fertilizer. That's advertising principle."

Oscar choked. "But all those signs, except one talk about how much fertilizer makes for California ranchers, Florida potato growers, Carolina cotton growers. What the heck do we care about what they do out there?"

Pat sighed with expression. "Oscar, farmers want to know how fertilizer is paying off for farmers everywhere, regardless of what crop they grow. That will influence them to buy more fertilizer for their own crops, for they will know that fertilizer pays for other crop farmers, too."

"Have you got some cardboard left?" Oscar demanded.

"Why, sure, Oscar?" said Pat in a puzzled tone. "Why?"

"Then make some signs for me," snapped the portly partner. "Make some signs to tell farmers to pay their bills on time. Tell them we got to eat, too, once in a while. And make an especially big one. Let it read 'CREDIT DEPARTMENT — 10TH FLOOR. CLIMB THE OAK TREE TO REACH IT.'"

WEED MENACE

COLUMBIA, MO.—Giant foxtail is Missouri's number one weed menace, according to C. A. Helm, professor of field crops at the University of Missouri.

85 Bu. per Acre Average Corn Yield Possible in Midwest

URBANA, ILL. — M. B. Russell, University of Illinois agronomist, says that corn yields in the Middle West could average 85 bu. per acre instead of the present 50, if farmers used improved soil management practices and had favorable weather conditions. He says the 85-bu. per acre estimate is based on a study by the National Soils Work Group.

Average yields imply that some will be far above it and some far below. With an 85-bu. crop, some Corn Belt farmers would harvest 115 to 125 bushels per acre, while other farmers on lower fertility soil would be able to make only 75 bushels.

Boosting corn yields depends to a considerable extent on the individual farm operator, Mr. Russell says. Some farmers who see their land only when they put in the crop and again when they harvest it, are in poor position to know their land and to farm it to its greatest potential.

Lack of nutrients is probably the greatest limiting factor in crop production, he points out. Rainfall, and the soil's physical condition play an important part.

Mr. Russell says it is essential for the soil to meet the peak demands of the crops. During the six weeks from the knee-high to the tasselling stage, the corn crop uses up to 85% of the total nutrients needed by the crop for the entire season, Mr. Russell reports.

New Banner Available From Safety Council

CHICAGO — The National Safety Council has added a giant-size accident prevention banner to its stable of safety training aids. The banners, 10 ft. long by 3½ ft. deep and printed in two brilliant colors, point up practical safety slogans with attention-getting drawings.

The banners come in two styles—one for indoor and the other for outdoor display. The indoor style is made of heavy display duck and has eight metal grommets for ease in mounting. The outdoor style is made of extra heavy duty duck, specially weatherproofed and vented, and has full length ropes stitched in top and bottom for secure fastening.

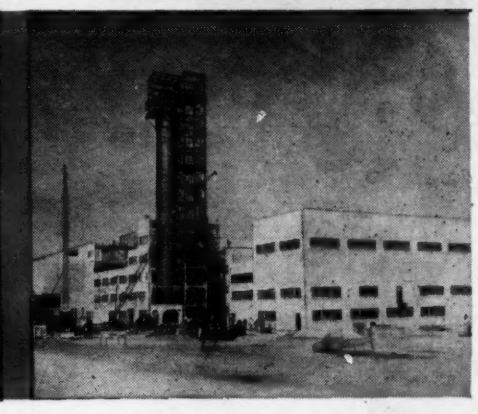
Twelve banners — one for each month of the year—are available on an annual subscription basis. Each new banner is shipped by the fifteenth of the month preceding its scheduled use.

For a flyer showing miniatures of many of the banners in full color, and for information on prices, write the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Barley Contest

FARGO—Crop improvement associations in three eastern North Dakota counties have developed plans to give malting barley production a "shot in the arm" in 1955, R. B. Widdifield, agronomist of North Dakota Agricultural College Extension Service, has announced. As part of an intensive educational program with growers to increase the quality and production of malting barley, the three counties will sponsor a special production contest for growers with substantial cash awards. The counties are Cass, Grand Forks and Cavalier. Local sponsoring committees in Cass and Grand Forks are county crop improvement association, and in Cavalier the State Barley Show Committee.

ertilizers to the farm
usiness for you!



ew, improved forms of dependable itrogen such as large-crystal ARCADIAN *merican* Nitrate of Soda continue to ove in volume. Free-flowing ARCADIAN itrate of Soda and pelleted ARCADIAN -N-L® Nitrogen Fertilizer are adapted new styles of farming.

Proof of the profits in modern ARCADIAN Fertilizers is being shown in Agricultural College experimental plots like this one on wheat, as well as in field days and farmer-dealer demonstrations. When you sell ARCADIAN, this practical proof helps bring you new customers, new sales.

Expanded plant capacity for making the newest, most modern forms of fertilizer is part of the continuing program Nitrogen Division is aiming at the fast-growing market for more and better plant foods. Your customers are buying ARCADIAN —so sell ARCADIAN for extra profits.

Take advantage of this double-barreled SALES OPPORTUNITY!

Arcadian®

Make the most of the ferment in the fertilizer business! Sell new ARCADIAN Fertilizers—sell fast-improving new fertilizer equipment. Tie in with the biggest advertising campaign in fertilizer history, now featuring ARCADIAN products in farm magazines, newspapers and radio broadcasts that blanket your territory.

Fill in and mail this coupon NOW!

- ☐ **UREA 45 Fertilizer** *45% Nitrogen Pellets*
- ☐ **12-12-12 Fertilizer** *Granular*
- ☐ **American Nitrate of Soda** *Improved Granular*
- ☐ **A-N-L® Nitrogen Fertilizer** *Pelleted*

Nitrogen Solutions

- ☐ *Non-pressure* **URAN* and FERAN***
- ☐ *Low-pressure* **NITRANA® and URASOL***

*Trade-Mark

NITROGEN DIVISION Allied Chemical & Dye Corporation
40 Rector St., New York 6, N. Y.

Please provide me full information on the products I have checked at the left.

☐ Please have an ARCADIAN salesman call on me.

NAME_____

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CITY_____ STATE_____

start 'em right

with

POWCO BRAND

ALDRIN

CONTROL SOIL PESTS . . . INCREASE YIELDS

Powco Brand 20% Aldrin Granular Concentrate and 2 lb. Aldrin Emulsion Concentrate:

1. Protect germination. 2. Are safe on seed and plants. 3. Provide early stands. 4. Reduce harvesting costs. 5. Provide better quality crops. 6. Are not absorbed by or translocated in plants. 7. Give no off-flavor. 8. Are chemically stable.

POWCO BRAND — KILLING POWER—THAT'S THE THING!

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Chicago, Atlanta, Fort Worth, Omaha, Denver
Pittsburgh, Philadelphia, Huntsville, Ala.

LOOK TO POWELL . . . FOR CONSISTENT TROUBLE-FREE QUALITY

SOILS and FERTILIZERS

Fourth Edition

By FIRMAN E. BEAR, *Research Specialist, New Jersey Agricultural Experiment Station.*

In plain language, this new edition tells how recent *modern* advances in soil technology affect plant growth and annual yield . . . and how the effective use of basic methods can increase the productiveness of farm lands. New facts, accurate figures, and 66 pointed illustrations show the relation between crops and soils.

1953. 420 Pages $6.00

Covers in detail: soil chemicals . . . important soil elements such as nitrogen, phosphorus, calcium . . . yield prospects of crop plants . . . moisture control . . . soil management . . . mechanical operations . . . soil conservation . . . organic matter maintenance.

For Sale By

CROPLIFE

P.O. Box 67, Minneapolis 1, Minn.

RINGING THE cash register

Merchandising Hints for The Retailer

Little Things

A small thing, like a dingy delivery truck, or soiled uni forms or clothes, somehow or other leads customers t think that the products you sell lack quality. At that poin a little thing becomes a big thing. Many of the thing a dealer might consider little actually become might big things in the minds of customers. A coat of pain will make a dingy delivery truck spic and span. Em ployees' uniforms or clothes, if torn and soiled, shoul be repaired and cleaned more frequently because you customers see them every day. These things becom mingled in their minds with the way they feel abou you, your firm, and the business in general. Do you men smoke and need a shave or haircut when customer come in? When your customers feel an uneasiness o irritation when they see such a person they won't remai customers long. Look at your store. How does it loo to you? Could anyone confuse its appearance with poo quality in your products? Look at your service. Doe it lead buyers to feel that it's the kind of service tha goes with quality? Is it helping or hurting the reputatio of your store and your product?

Advertising Aspects

When considering an advertising program study care fully the fundamental aspects. First of all, establish sufficient advertising budget. Plan a year 'round pro gram which includes the proper media, or balance use of newspapers, radio, direct mail and television Be consistent in your schedule of advertising and at tempt to be informative. Be truthful and don't dodg prices. Use helps available from your local newspape radio station, your manufacturer, his salesmen and you own salesmen. The mechanics of newspaper adverti ing should include an attention getting headline an illustration, body copy which tells a story, and you individual signature in every advertisement.

Those Guilty Eyes

Shoplifters (detectives call them "boosters") steal a estimated $250 million worth of goods from all types o stores each year. Officials say that the furtive look give away the shoplifter. Watch for the roving guilty eye if you want to spot them, they say.

No Profit

Merchandise will produce a profit for the retailer only it is sold; it is unprofitable when it stays on the shel When goods do not move a mark-down must be taken If the mark-down price does not sell the merchandise the successive mark-downs should be taken until it has bee sold.

Profitable Sideline

One successful dealer who was asked recently if h would advise other dealers to follow his example i setting up a seed cleaning and seed treating service ha these comments: Ask yourself if there is a need fo this service in your trade area? What is the busines potential? What is the proximity of the nearest clean ing and treating plant? What type and size of plan would be most appropriate? Remember, this is a season al business and it is important that the farmer-custome be served promptly because he is in a big hurry t get his seed and get started planting. What will be th cost of building, maintaining and operating the plant Is it feasible to transfer help from the feed business t the seed plant when necessary and without disruptin feed operations? Are wider wholesale or retail sale possible? Remember, the $10,000 to $20,000 necessar to get into the seed cleaning and treating business certain to keep out the intinerant peddlers. A see plant will bring many new customers into the stor Will the store be prepared to handle and serve the properly? If the answers to these questions come ou favorably it is likely that a seed plant will be a valuab and profitable sideline addition.

Keep Them Active

Dealers who have succeeded in getting their custome started keeping records on production and profit mu encourage them from time to time to keep them at it. B cause they do not have as much time during the bu seasons as in winter, farmers often take a dislike t keeping records. But the dealer must keep remindi customers that their records are the only indicati of whether their methods are making any money f them. Carefully kept records make one of the be methods of advertising for the dealer. Farmers w invariably discuss these records with their neighbo

How to Stay In Business

G. A. Phillips, Cluett, Peabody & Co., Inc., states th two major rules essential to longevity in business a Quick adaptability to new methods, new materials a new products; and constant research to better prese products as well as for new and even dissimilar produc

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on rotational circulation up to date on industry happenings.

Farmer planting intentions, as of March 1, indicated a 285½ million acreage in 16 crops this year—an increase of 3.2 million acres over 1954—according to the U.S. Department of Agriculture. Major increases were in feed grain crops.

The first annual meeting of the National Nitrogen Solutions Dealers Assn. was held in Omaha March 14-15. Wayne Johnson, Shenandoah, Iowa, was named president. . . . Phillips Chemical Co. acquired quarter interest in Farmers Corporation, a new firm established March 12 by the National Farmers Union and Kee-McGee Oil Industries.

Chas. Pfizer & Co. announced large-scale commercial production of itaconic acid on March 15. The material may have an application as base for insecticidal products, as a "building block" in the process. . . . Mackwin Co., Winona, Minn., developed a method of mixing pesticides with fertilizers in which the insecticide is sprayed onto fertilizer as the latter passes along a conveyor belt.

Cotton meeting at Phoenix, Ariz., March 8-9 brought out fact that systemic insecticides show "great promise" in pest control in cotton, but much more research is needed before full use comes. . . . U.S. Department of Agriculture pointed out that cost of fertilizer materials has increased less than any other commodity the farmer buys. Hired labor was listed as having increased over 100%, while fertilizer has gone up only 52%, compared to cost of 1935-39.

Speakers at the Spring Meeting of the National Agricultural Chemical Assn. in St. Louis called for an extensive educational job, directed at the public, dealers, distributors and the basic pesticide industry itself. . . . U.S. Department of Agriculture surveys indicated that chinch bug infestation in 1955 would be local, ranging from non-economic to threatening.

Pesticide industry leaders, in answer to a Croplife survey, said that an improved balance between supply and demand of materials appeared likely for 1955. . . . Freeport Sulphur Co. and Pittsburgh Consolidation Coal Co. announced plans to form a new firm, National Potash Co.

Commercial Solvents Corp. announced that it will participate in a Canadian chemical project, Northwest Nitro-Chemicals, Ltd., which will manufacture and market nitrogen and phosphate fertilizers. . . . Standard Oil Company of California announced a chemical manufacturing expansion expected to cost $16 million. It will include a new ammonia and nitric acid plant.

A new firm, Diamond Black Leaf Co., was announced Feb. 24. Diamond Alkali Co., Cleveland, will acquire Virginia-Carolina Chemical Company's interest in the new firm during the next five years, according to the agreement. The new firm will be managed by Diamond Alkali. Loren P. Scoville and Dr. Bruce G. Gleissner will serve as general manager and assistant general manager, respectively, in the new firm.

A new attendance record of over 500 was noted at the Feb. 17-18 meeting of the Middle West Soil Improvement Committee in Chicago. Speakers represented colleges and universities in the 18 states involved, and included industry representatives.

The U.S. Commerce Department predicted record sales of chemicals and allied products in 1955, with gains seen in the use of fertilizers and pesticides.

Construction started on an ammonium nitrate plant to be operated by Brea Chemicals, Inc., Los Angeles. . . . International Minerals & Chemical Corp. announced that it is expanding its potassium sulfate producing facilities at Carlsbad, N.M. . . . Stauffer Chemical Co. completed a new insecticide and fungicide blending plant at Lubbock, Texas.

Procedural regulations for the establishment of safe tolerances for pesticide chemicals used on food crops are to go into effect March 6, the U.S. Department of Health, Education and Welfare announced Feb. 9.

Robert Campbell, acting president of the new St. Paul Ammonia Products Co., announced that the firm would erect a $15 million anhydrous ammonia plant near St. Paul.

Fertilizer mixers, replying to a Croplife survey on the 1955 business outlook, said a balance of supply and demand appears likely this year. The fall fertilization program was reported to be making headway in some areas.

The 1955 corn allotment was set at 49,842,697 acres, an increase of 8% over that of last year . . . Organization of Calumet Nitrogen Products Co., a new firm that will build an ammonia plant at Hammond, Ind., was announced by Standard Oil Co. (Indiana) and Sinclair Refining Co.

Sales of East German potash below domestic prices threaten to produce a loss of at least $2.5 million to the U.S. potash industry, it was stated at a U.S. Tariff Commission hearing on the imports. . . . The U.S. Department of Agriculture reported that a serious corn borer infestation is likely this year in the Midwest if weather conditions are favorable for the insect's development.

Numerous state meetings were held. Cotton States Branch of Entomological Society of America met at Tampa, Fla. and elected H. C. Young, USDA as chairman. . . . The Southern Weed Conference met Jan. 17-19 at St. Petersburg, Fla. with 300 in attendance. G. C. Klingman, N. Carolina State College, Raleigh, was named president of the Conference.

Colorado Fertilizer Conference was held on the campus of Colorado A & M, Ft. Collins. That fertilizer can largely compensate for lack of moisture in dry years, was emphasized by speakers. . . . Mississippi Insect Conference at State College was held early in January featured well-known speakers;

PHILLIPS 66
AMMONIUM NITRATE

NOW AVAILABLE IN NEW POLYETHYLENE LINED 80 AND 100 POUND BAGS.

These new multi-wall *polyethylene* lined bags assure a free-flowing, easy-to-use-product.

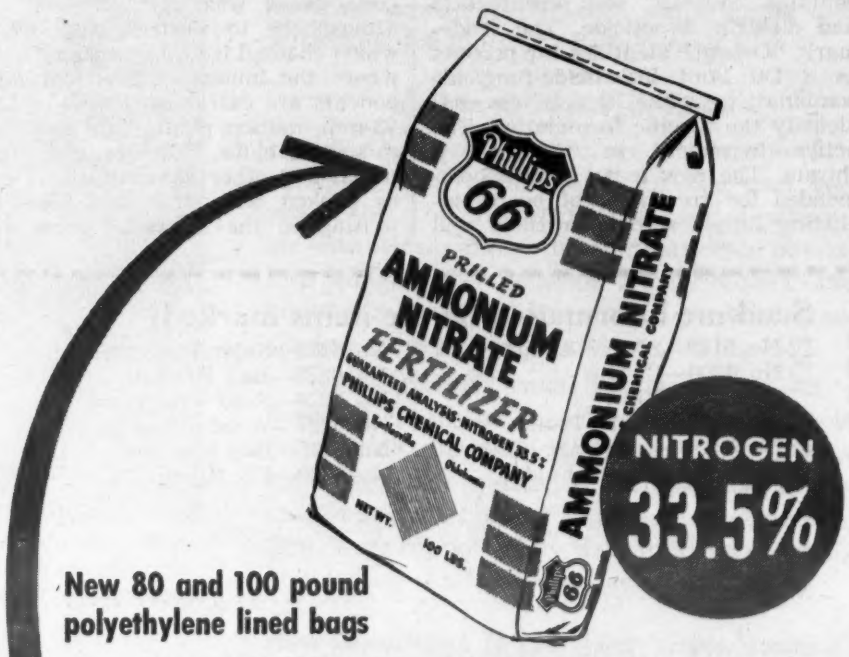
33.5% Nitrogen

Phillips 66 Ammonium Nitrate is *guaranteed* to contain 33.5% Nitrogen:

16.75% nitrate nitrogen
16.75% ammonia nitrogen

Phillips *66* Ammonium Nitrate is *prilled*. The small, coated pellets flow freely, resist caking, handle easily. This superior fertilizer is highly recommended for top dressing small grains, seed grasses; side dressing for row crops; preplant and broadcasting applications.

As a companion high nitrogen fertilizer for mixed goods, Phillips also produces Ammonium Sulfate (21% Nitrogen) in 80 and 100 pound bags.



New 80 and 100 pound polyethylene lined bags

IN A FERTILIZER, *IT'S PERFORMANCE THAT COUNTS.* THIS SHIELD IS YOUR GUARANTEE OF *HIGH QUALITY, HIGH NITROGEN* FERTILIZER.

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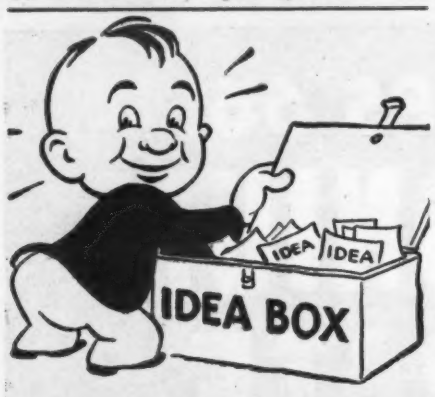
INDIANAPOLIS, IND.—	1112 N. Pennsylvania St.	Phone: Melrose 5-8371
KANSAS CITY, MO.—	500 West 39th St.	Phone: Logan 5125
MINNEAPOLIS, MINN.—	212 Sixth St. South	Phone: Main 7461
OMAHA, NEB.—	WOW Building	Phone: Jackson 5911
ST. LOUIS, MO.—	4251 Lindell Blvd.	Phone: Jefferson 1-6677
TULSA, OKLA.—	1708 Utica Square	Phone: 7-7561
WICHITA, KAN.—	501 KFH Building	Phone: Forest 3-0294



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6227—Weed Killer

The Pacific Coast Borax Co. has introduced UREABOR, a new weed and grass killer developed specifically for industry. The product, a complex of sodium borates and 3-p-chlorophenyl 1-1, dimethylurea, has been extensively tested throughout the U.S., a company announcement says. No mixing or spraying equipment is required; it is applied dry just as it comes from 50 lb. multi-wall paper sacks. The product will be marketed by the company's Agricultural Sales Division. To secure more complete details check No. 6227 on the coupon and mail it.

No. 6226—Seed Protectant

A new insecticide-fungicide seed protectant has been developed by the Du Pont Company. Its trade name is "Delsan" AD seed protectant and contains "Arasan" seed disinfectant and dieldrin insecticide. The trademark, "Delsan," identifies the product as a Du Pont insecticide-fungicide combination, while the letters AD identify the specific formulation. The active ingredient in "Arasan" is thiram. The new material is recommended for treatment of beans, including limas; seed corn (field and sweet); and pea seed. The seed protectant may be applied as a slurry with a standard slurry treater, or the slurry may be mixed with the seed in a barrel treater or on a floor. The material adheres to the seed after treatment and does not tend to "dust off," it is claimed. The material is applied at the rate of 1¼ oz. per bushel of field corn seed, and 1¾ oz. per bushel of sweet corn, bean, or pea seed. To secure more information check No. 6226 on the coupon and mail it.

No. 6207—Film

How once-wasted smoke from coke ovens is now converted into a wealth of basic chemicals used in the manufacture of fertilizers and countless other articles is the subject of a new motion picture, "Waiting Harvest," just released by the United States Steel Corp. "Waiting Harvest" traces the development of coke-making operations from the early industrial era when black smoke from beehive coke ovens was cast off into the atmosphere to modern coke ovens which channel it into processing units where the important chemical components are extracted. Prints of this 23-min. motion picture are available to service clubs, churches, civic, fraternal and other associations. It can be booked on a free loan basis by writing to the Motion Picture and Visual Aids Section, Advertising Division, United States Steel Corp., 525 William Penn Place, Pittsburgh 30, Pa.

No. 6230—Alfalfa Weevil Folder

A new, colorful 6-page folder on the control of alfalfa weevils with Heptachlor is being made available by the Velsicol Corp. A company announcement states that, "This handy, pocket size folder is crammed with information on how to stop alfalfa weevil infestations before they start; how to get better crops; and how to protect helpful parasites." Specific suggestions as to methods and rates of Heptachlor formulations are listed in brief steps. The booklet on alfalfa weevils and other crop insects will be sent without charge. Merely check No. 6230 on the coupon and mail it to this newspaper.

No. 6225—Bag Product

Arkell & Smiths is introducing a new moisture-barrier sheet, Lamo-Pak, to industries whose packaged products are affected negatively by changes in moisture content. The laminate is sandwiched between two sheets of light weight kraft and is particularly adaptable for packaging products whose moisture content must be retained and for hygroscopic materials, company spokesmen said. Other features claimed are: no odor, less stiffness, and will not cause sewing needles to gum. Samples of the new Lamo-Pak moisture-barrier sheet may be obtained by checking No. 6225 on the coupon and mailing it.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted here to help keep retail dealers on rotational circulation informed of new industry products, literature and services.

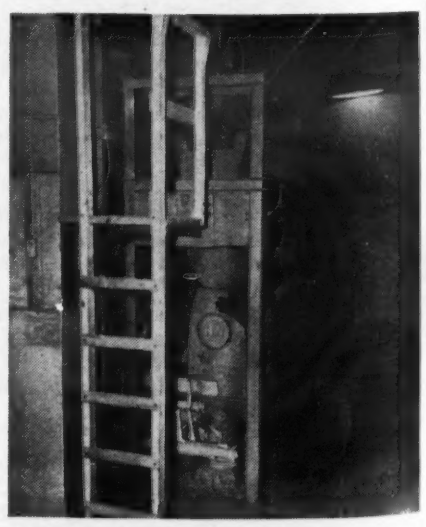
No. 6229—Fly Killer

A new fly bait that is said to kill up to two million flies per pound is now being marketed nationally by the Pittsburgh Coke & Chemical Co. The new product, called Dipterex-199, is claimed to kill both resistant and non-resistant flies in seconds and provide up to 98% kills within a few hours after a single application. The product is packaged as a dry bait and sold in 1-lb. shaker-type containers and also in 10-lb. pails. It is said to have no odor, won't stain and is free-flowing granular material. One or two applications per week is recommended for full control around the farm and in commercial establishments. The product's active ingredient is Bayer compound L-13/59. The firm reports that at a midwestern university a small amount of Dipterex-199 was placed in a test chamber about the size of a large living room. Two thousand flies were released in the chamber. One hour later, 94% of the flies were dead, and at the end of eight hours, a 100% kill was recorded, according to the company. Another group of researchers tested the product at a large southwestern farm. Dipterex-199 was applied to surfaces in feed mixing and storage rooms and on feed troughs and pens. The official report of the research team contained the following statement: "The speed and completeness of fly control were sensational." Flies feeding on the bait lost their ability to fly in 60 to 140 seconds. They accumulated in piles up to one-half inch deep in 48 hours. One month after application, flies were still being killed by the original treatment, the firm reports. Dealers are being backed by the most extensive advertising and merchandising program ever initiated by the company for a single product. Large advertisements will be featured in national dairy and poultry magazines and a concentrated schedule of announcements will be carried on farm programs on over a dozen major clear channel radio stations. Television spots will be used in selected areas. At the dealer level, Dipterex-199 will be promoted by silver, red and blue display cartons, and by wall posters, window streamers and direct mail pieces. For more details check No. 6229 on the coupon and drop it in the mail.

ENOUGH TO KILL 2,000,000 FLIES!
DIPTEREX-199
THE AMAZING NEW FLY-KILLER BAIT!
Easy to Use! Economical! Won't Stain! No Odor!
ALSO AVAILABLE IN ECONOMICAL 10 POUND CONTAINER

No. 6228—Bag Filling Machine

The Kraft Bag Corp. is now marketing an automatic open mouth filling machine that is said to combine high speed and accuracy in operation with low cost of installation and maintenance. The machine is capable of 22 to 24 one hundred pound charges a minute, with one man hanging bags, using standard size and standard type open mouth bags. The company states that "Because it is pace-setting, the machine requires no head of material to maintain accuracy. It functions like other machines of this type, except that exclusive controls help to maintain unusual accuracy at high speeds. The machine can handle all weights from 25 lb. to



Send me information on the items marked:

☐ No. 5119—Slurry Adapter	☐ No. 6222—Sales Program
☐ No. 6206—Gauges	☐ No. 6225—Bag Product
☐ No. 6207—Film	☐ No. 6226—Seed Protectant
☐ No. 6210—Tank Trailer	☐ No. 6227—Weed Killer
☐ No. 6218—Applicator	☐ No. 6228—Bag Machine
☐ No. 6230—Weevil Folder	☐ No. 6229—Fly Killer

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lb., with an average variance of more than 8 oz. plus or minus under ordinary production conditions during a full day's operation." To secure more complete details check No. 6228 on the coupon and mail it.

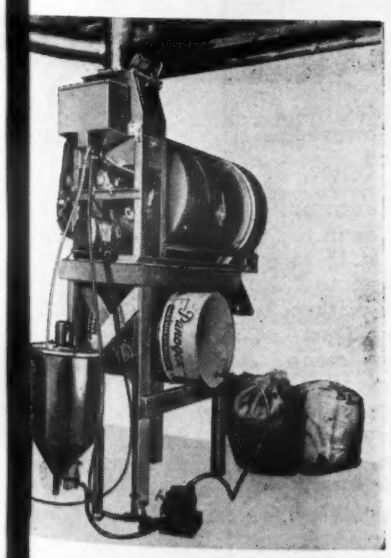
No. 6206—Gauges

Two new gauges have been added to the Marsh Instrument Company's line of agricultural ammonia instruments—one graduated 0-60 lb. and the other graduated 0-150 lb. Both gauges are standard with 1 lb. primary divisions and are designed for

on metering devices. Other gauges manufactured are 0-400 lb. and 0-300 lb. for bulk plant installations and also two compound ranges—30 in. x 300 lb. and 30 in. x 300 lb. A new literature now available is the recalibrator for recalibrating a gauge. Secure more complete information by checking No. 6206 on the coupon and mailing it.

No. 5119—Slurry Adapter

Panogen, Inc., now is marketing a slurry adapter for use on its present seed treaters. The addition of the slurry adapter presents a quick method of change-over from liquid seed treating to slurry treating and takes a greater range of seed treating, is claimed. A completely automatic unit, it incorporates an overflow feature for uniform suspension of the chemical in the slurry mixture. The company announcement states: "This unit, along with an accurate measuring device, delivers the slurry, properly mixed at the exact dosage rate, to the seed—insuring most effective seed treating. The slurry tank pumps dry to avoid waste. The treat-



is self-cleaning, permitting quick change-over to liquid seed treating." To secure more complete information check No. 5119 on the coupon and drop it in the mail.

No. 6222—Sales Program

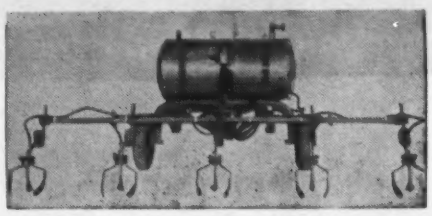
The Agricultural Sales Division, Chas. Pfizer & Co., Inc., has available a dealer program for promoting sales of its product, Agri-mycin, an antibiotic spray powder for control of certain plant diseases such as fire blight of apples and pears. The program is outlined in new literature prepared recently and which is now available. A broadside details the program to the dealer and a catalog sheet outlines the product and various program angles, also at the dealer level. Also available is a small folder for consumer distribution and a large booklet which contains abstracts on the use of antibiotics in the treatment of plant diseases. To secure more full details of the program check No. 6222 on the coupon and mail it.

No. 6210—Tank Trailer

Descriptive literature on its anhydrous ammonia tank trailer has been made available by the Foreman Manufacturing Co. Tank specifications listed on the literature state: 1,000-gal., 265 PSIG 300° F. maximum tanks—either 41 in. or 46 in. diameter tanks. According to a company spokesman, the tank trailer is designed to insure compliance with applicable ICC regulations, with a tank mounting which facilitates tank removal. The literature lists specifications of the trailer chassis, axle assembly, tires, brake system, coupling, fenders, safety chains, lighting and dimensions. Secure more complete information by checking No. 6210 on the coupon and mailing it.

No. 6218—Applicator

A new PTO operated liquid nitrogen applicator for applying pressure or non-pressure solutions is being manufactured by Spra-White Chemical Co., Inc. It can also be used for insecticides and herbicides, as it is available with boom or boomless nozzles for broadcast application, company spokesmen said. From 10-200 lb. of nitrogen per acre may be applied and up to 80 acres may be covered in a day, used before planting or while side-dressing, it is claimed. Application depths up to 6 in. and



positive mounding of earth over the nitrogen are specified. The 200-gal. tank is equipped with calibrated sight glass and 30 lb. psi working pressure is possible. To secure more complete details check No. 6218 on the coupon and drop it in the mail.

SOUTH DAKOTA CROP PLANS

SIOUX FALLS — South Dakota farmers plan for about 18½ million acres in crops in 1955—a 1% increase over 1954. Increases are planned for rye, barley, corn, soybeans and alfalfa hay. Smaller acreages are indicated for wheat, flax, oats, potatoes and sorghums.

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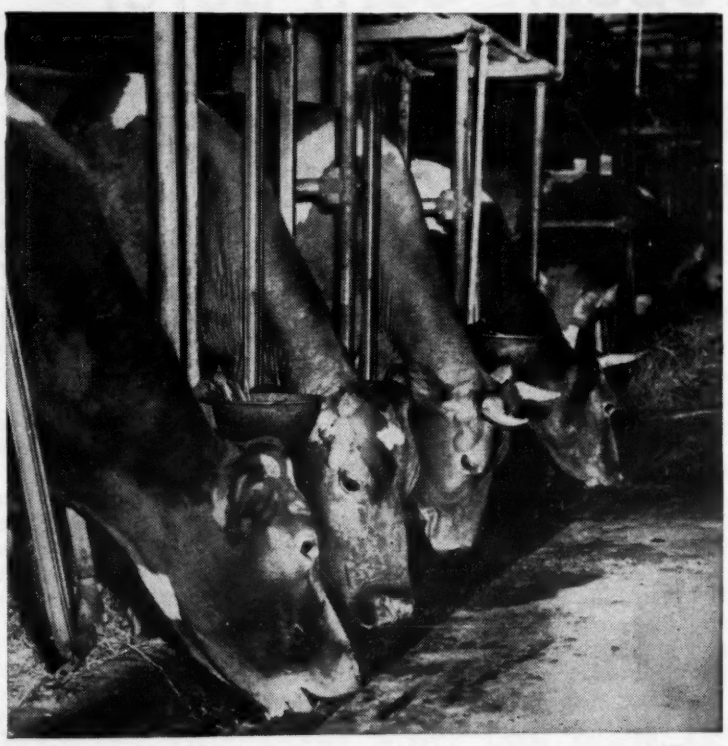

CATTLE CLEAN IT UP! Farmers report that their cattle prefer "STA-FRESH" silage over untreated silage. In free choice feeding tests, cows consumed better than three times as much of the more nutritious bisulfite-treated silage.

ENDS "SILAGE STINK!"—"STA-FRESH" proves blessing to farmers and their wives by ending the contaminating, all-pervading odor of untreated grass silage.

EASY TO USE! When you use "STA-FRESH", just cut your crop at the best stage of maturity, regardless of weather, and mix in the STA-FRESH powder at the blower automatically with an easy-to-make applicator.

NEW YORK, N. Y. — Reports from county agents and farmers in all parts of the country indicate rapidly increasing interest in grass silage for feeding dairy cows and other cattle. This has been spurred by the remarkable success of "STA-FRESH" Sodium Bisulfite, the amazing powder that keeps silage green and nutritious for months after ensiling.

Makes A Superior Feed

Backing up research findings which were featured in farm publications for the past two years, these on-the-farm reports show particular enthusiasm about the elimination of obnoxious "silage stink" by use of "STA-FRESH" and about its many advantages in making grass silage a more palatable and nourishing feed.

"STA-FRESH" treated silage was found to remain virtually as green, fresh and sweet-smelling as fresh-chopped grass. Tests showing more total digestible nutrients, with less loss of dry matter and a far higher sugar and carotene content, were supported by the way cattle literally gobbled up the treated silage.

New Importance To Low-Cost "Grass Farming"

Here, farm tested and proved, is the answer to supplying a good, low-cost cattle feed which provides the energy cattle need, the taste that makes them want it, and the vitamin A required to produce rich milk and quality beef. "STA-FRESH" has proved effective in ensiling such forage crops as grass and alfalfa in either upright or trench silos.

Low Cost Cited

The gain in feed value by itself more than offsets the cost of "STA-FRESH", which comes in the form of an inexpensive, easy-to-use powder, packed in 80 pound bags. Only 8 lbs. treats a full ton.

FREE FOLDERS FOR DISTRIBUTION AT YOUR MEETINGS — Folders tell how to use "STA-FRESH" and describe applicators which the farmer can easily make for himself. Let us know how many copies you can use. Write today to GENERAL CHEMICAL DIVISION, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, N. Y.

*Reg. Trade Mark

BUG OF THE WEEK

Mr. Dealer--Cut out this page for your bulletin board

European Corn Borer

How to Identify

The European corn borer in its larval stage, is a pinkish worm ranging in size from ¾ to an inch in length. Small brown spots are on its back. Distribution of the borer now covers practically all the corn-growing area of the U.S. It has spread from New England since its discovery in 1917.

Habits of the Corn Borer

Two strains of the borer exist in the U.S.: one which passes through one life cycle a year and the other which has two or more complete cycles, depending upon the environment. The latter exists in nearly all the infested areas. Eggs laid in masses of 15 or 20 or more on the underside of leaves, hatch in from 4 to 9 days. The newborn borers crawl to protected places on the leaves and begin to feed on the immature leaves and tassels, finally boring into the stalks and ears. They mature in about a month and after providing an exit for the adult moth, change to pupae inside the tunnels. In 10 to 14 days, the adult moths emerge from the pupal cells and lay about 400 eggs each on corn or other plants that they may find in a suitable stage of growth. Moths live from 10 to 24 days and during this time are active fliers in evenings or nights. Thus, they may migrate for several miles. The insects pass the winter in the borer stage inside stems of corn or other plants. They change to moths late in spring or early in summer to begin another season of destruction.

Damage Done by Corn Borer

Because it is a boring insect, greatest injury results from its tunneling within the stalk, ears, tassel, midrib of the leaf, brace roots and practically all other parts of the plant except the fibrous roots. Character of injury depends upon the stage of development of the corn plant when the infestation takes place. If the attacked plant is just developing a tassel, some of the small borers enter the buds and feed within; others eat the surface of the tassel buds. If the infestation comes at the time of pollen shedding, accumulations of pollen provide satisfactory feed for the insects. Later, they tunnel inside the tassel stem and its branches often causing them to break over. Such broken tassels, with sawdust-like borings at the breaks, are signs of infestation. Likewise, small holes in the stalks, with bunches of dusty borings at or below them, indicate the area where the worm is at work. Borers may continue to tunnel upward or downward, weakening the plant so much that it frequently breaks and falls over. Injury to stalks and ears may be increased even further by the entrance of disease organisms through the lesions made by borers. Despite efforts at control this pest does millions of dollars in damage each year.

Control Methods

Since the borer's life is spent largely within the plant, many of the recommended practices for control are of cultural nature. However, insecticidal materials have been found effective. DDT in oil or dusted at 0.75 to 1.25 lb. an acre has been indicated for sweet corn or seed corn. As soon as the borer eggs begin to hatch, applications of 5% DDT dust at 15-25 lb. an acre may begin and continue at 5 to 7 day intervals three or four times. Either ground or air equipment may be used. Dusting with 2% parathion has also been mentioned favorably, as have rotenone, nicotine, derris and Ryania. (No DDT on corn to be used as animal forage.) Cultural means include the shredding of stalks, plowing under clean in the fall or early spring before moths emerge, and if all else fails, burning infested stalks.

Photo of European corn borer furnished Croplife through courtesy of Illinois Natural History Survey.

Previous "Bug of the Week" features are being reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.

Farm Chemicals Prove Profitable Item for Seed Store

The Litchfield (Minn.) Seed House, owned by L. C. and W. Wogensen, has a fertilizer, farm chemicals and nursery stock department which ties in very well with the sale of seeds and feeds.

The seed, fertilizer and nursery stock is housed in a large store with island and wall displays. Seeds are carried for small gardeners and also for farmers who buy in larger amounts, especially field seeds.

From January until early summer farmers are buying seeds of all types and the alert Litchfield service staff always tries to mention fertilizer and farm chemicals to such customers at seed purchase time. Suggested selling of this type aids the firm in making many additional sales.

W. Wogensen is the firm's nursery stock specialist, and he is able to advise rural patrons on what type of fruit trees to purchase, how to plant and care for them, and he also gives advice on planting of other shrubs and trees. A service like this is appreciated by farmers, and it results in additional business.

No matter if the farmer wants 20¢ worth of vegetable seeds or $200 worth of corn or alfalfa seed, he can get it at the well-stocked Litchfield Seed House. And seeing the fertilizer and the farm chemicals displayed nearby, the farmer is reminded by such displays that seeds also need proper soil nutrients and chemical care to help bring plants to maturity and full production.

This seed and fertilizer firm also enters floats in agricultural event parades in the area and finds this is good publicity. The company also exhibits its products at township and county fairs and does consistent newspaper and direct mail advertising in the area. Farm chemicals, fertilizer, nursery stocks and seeds are featured frequently in this advertising. In fact, the company's wide variety of farm merchandise, plus its constant promotional and advertising program, helps to bring in farmers from a radius of 35 miles—a test of sound business methods.

Grass and Legume Study Established At Phillips Project

BARTLESVILLE, OKLA.—Phillips Petroleum Co.'s agricultural demonstration project, near Foraker, Okla., reports the establishment of a nursery where native and introduced grasses and legumes can be studied.

With the counsel of grass specialists of the area, a great number of species and varieties of grasses and legumes are being planted at the demonstration project. Summer plantings of 1954 included five selections of Bermuda grass, all of which appear to be adapted. The three selections showing the greatest vigor include Greenfield and Midland, both selected by Oklahoma A&M College specialists, and Grissom's Special, a local selection made by the Soil Conservation Service's area range specialist.

Possibilities of adapting the various plant species to a revegetation program will be studied. Also response of the plants to nitrogen materials, as well as other plant nutrients, will be noted. Range specialists and students are encouraged by Phillips to make their own observations at the Foraker project.

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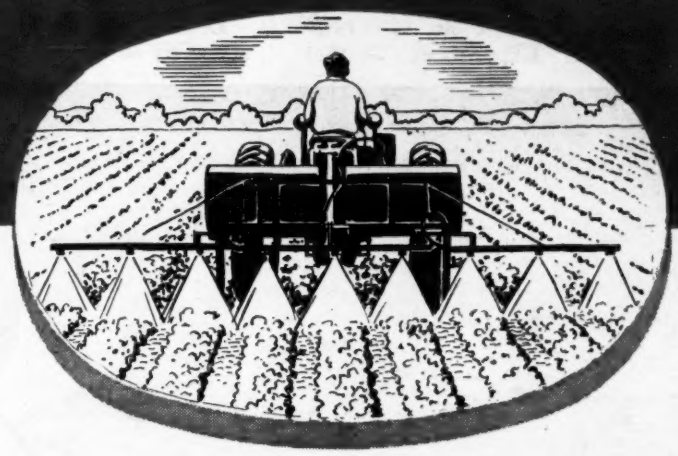

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Thompson-Hayward DED-WEED
with Confidence, because . . .

You know that DED-WEED represents the latest advance in agricultural chemistry. Every DED-WEED product is farm-tested...of proven effectiveness ...economical to buy...and easy to use.

Whether a customer wants to control weeds in field or pasture, there is a Thompson-Hayward DED-WEED formulated for his specific need. Sell DED-WEED for troublesome weeds. Sell DED-WEED for woody growth and hard-to-kill weeds.

Stock up now on the formulations of Thompson-Hayward DED-WEED, needed in *your* locality. Be ready to meet the demand that is bound to come soon.

Our Local Staff Can Help You and Your Customers Thompson-Hayward maintains warehouses of our own and sales offices in 18 different cities. The Thompson-Hayward headquarters nearest you is staffed with men who know your particular local conditions and what products will serve your customers best. Don't hesitate to call the Thompson-Hayward office nearest you at any time for advice on any agricultural chemical problem.

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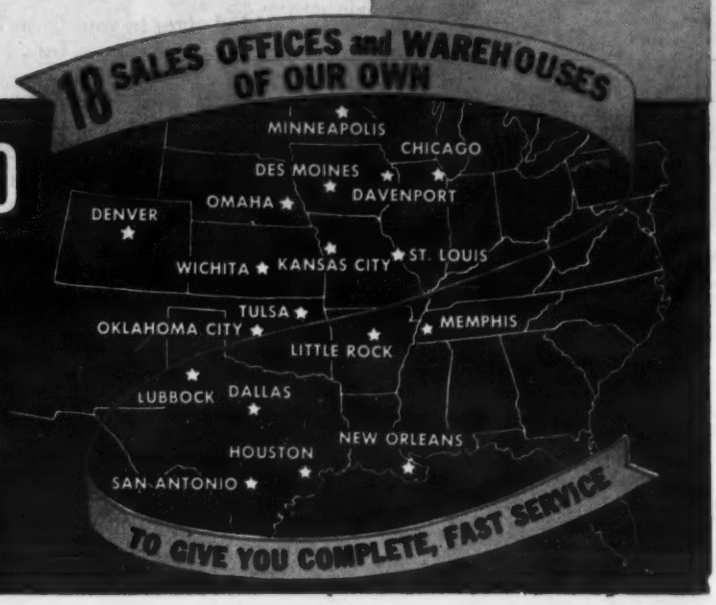

Better Selling

Richer Sales Fields for Dealers

FARM SERVICE DATA

Extension Station Reports

Hay yields of six or seven tons per acre can be obtained from legume-grass meadows when good management practices are followed, according to reports from Ohio agronomists.

These soils men recommend the following practices for making meadows more profitable:

1—Adapt the drill for bank seeding, which puts fertilizer in easy reach of the seedlings. The few extra dollars it takes to make this adjustment will pay off in a saving on seed and increase the chances of good stands.

2—Top-dress with high analysis phosphate and potash fertilizer to meet the nutrient needs of high yielding meadows. A 5-ton hay crop will remove 50 lb. phosphate and 150 to 200 lb. potash from the soil.

3—Keep insect damage low by spraying. Research at the Ohio Agricultural Experiment Station indicates yields can be increased ½ ton or more per acre for each spray used to control insects.

4—Harvest early. Legume-grass meadows should be harvested before they have passed their peak of growth. Early-cut forage gives livestock the maximum amount of digestible nutrients.

5—Rotate the grazing. This permits a come-back by pasture plants before the next grazing.

6—Be sure the soil has enough lime. A soil test can guide you on what is needed.

The research men point out that high yielding meadows can help condition the soil for bigger crops of corn following in the rotation.

★

Drouth damage was cut down considerably on Kansas wheat fields that were fertilized for the 1954 crop, according to Dr. Floyd Smith, soil specialist of Kansas State College.

Wheat yields on fertilized fields averaged 39 bu. per acre, compared to 26 bu. on unfertilized fields, according to Dr. Smith's studies.

"This extra 13 bu. from the fertilized fields," said Dr. Smith, "gave farmers a return of $2.50 for every dollar they invested in soil improvement." Excessively hot, dry weather hampered wheat growing operations in many parts of Kansas last season, he reports.

"But in spite of these unfavorable conditions," he said, "the wheat response to phosphate and potash fertilizer was fabulous. Nitrogen fertilizer nearly doubled wheat yields in North Central Kansas."

Dr. Smith said that for high yields and rapid growth, wheat needs plant nutrients in quickly available form from the soil. To make sure the soil can provide those nutrient supplies, he advises farmers to have their soil tested and then follow the recommendations for the use of nitrogen, phosphate and potash.

★

University of Missouri agronomists report that the cost of growing corn can be cut at least 26¢ a bushel by good farming practices, including the use of fertilizer. These soils men also say that corn yields per acre can be more than doubled and profits boosted nearly three and a half times.

G. E. Smith and O. T. Coleman of the Missouri agronomy staff report that in their tests it cost 58¢ per bushel to produce corn on fertilized fields, compared to 84¢ on unfertilized fields.

Yields averaged 80 bushels per acre on fertilized fields, as against 35 bushels on untreated plots. The net profit was $65.50 per acre for fertilized corn and $19.75 for unfertilized corn.

The soils men estimate that fixed production costs averaged $29.25 per acre when no fertilizer was added. These costs included seed, tillage, cultivation, harvesting and other items.

On fertilized fields production costs totaled $46.40 per acre. These comprised a fixed cost of $31.50, plus a fertilizer cost of $14.90 per acre.

The 80-bu. yield on the fertilized fields was worth $112 per acre, figuring that corn sells for $1.40 bu. This gave a net profit of $65.60 per acre, when production costs were deducted. The crop from the unfertilized field had an average value of $49 per acre, leaving a net profit of $19.75 per acre, after fixed costs were deducted.

★

Darrel S. Metcalfe, agronomist at Iowa State College, says nitrogen is the key factor in producing greater bromegrass seed and forage yields. He says brome uses a lot of nitrogen, and bromegrass fields soon become sodbound without plenty of nitrogen. As a result plants become yellow and stunted.

★

Diseases are cutting U.S. alfalfa yields by as much as 40% annually, according to recent estimates of U.S. Department of Agriculture research men. Farmers harvest only about 6 out of every 10 tons of alfalfa that they might have had if disease had not weakened the stand or slowed the growth.

★

A tip from the agronomy department at Purdue University says that nitrogen fertilizer as a top dressing for winter wheat, applied in early March in southern Indiana

life to crops; death to insects

You can give new life and added vigor to your fruits or vegetables — and kill harmful insects at the same time — by adding GRACE UREA PRILLS to your regular pesticide sprays.

It's the simplest and quickest way to give your crops the supplemental nitrogen they need — over and above what is supplied to them in mixed fertilizers.

GRACE UREA PRILLS' fertilizing power — an unsurpassed 45% nitrogen — is full strength and quickly absorbed by foliage. You get top efficiency, because roots absorb any spray dropping to the ground. And GRACE UREA PRILLS are compatible with any commonly used spray material. This fertilizer is safe to handle, dissolves readily and does not corrode or clog spray equipment.

Suggested amounts for mixing with pest-control sprays are given in the chart at the right. Less concentrated solutions may be used, depending on the frequency of spraying and the specific nitrogen needs of your particular crop and soil.

Pounds GRACE UREA PRILLS suggested per 100 gals. Spray

VEGETABLES	LBS.
Tomatoes, cucumbers, cabbage, cauliflower, celery, lettuce, peppers, snap-beans, sweet corn, strawberries	4-5
Sweet potatoes	5-10
Potatoes	15
Carrots, parsley	20
FRUITS	
Apples	3-5
Cherries	5
Citrus	5-7½
Plums and prunes	10

USE GRACE UREA PRILLS FOR ALL TYPES OF CROPS • IN IRRIGATION WATER • AS A TOP-DRESSING OR SIDE-DRESSING • WHEREVER NITROGEN IS NEEDED

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to late March or early April in northern Indiana, should prove quite profitable. During eight years of demonstration trials, application of 25 lb. actual nitrogen has given an average increase of five to six bushels per acre.

★

Adding nitrogen to the fertilizer helped double alfalfa yields when the legume was seeded with wheat in the fall, Richard Swenson, Michigan State College soils specialist, reports. He said that 20 lb. of nitrogen per acre was as effective as a 40-lb. application in increasing the alfalfa yield.

Michigan experiments indicate that a high soil nutrient supply is advisable for both the alfalfa and the companion crop of oats or wheat. Wheat yields were increased up to 9.3 bu. per acre and oats 15 bu., when 40 lb. nitrogen per acre was added to the fertilizer, he reported.

★

Midwestern farms could readily produce from 600 to 800 lb. beef per acre with better soil and pasture management methods, reports the Middle West Soil Improvement Committee. "The key to such production," says the committee, "is higher yields of good quality forage with its harvest so managed that we get the most pounds of meat per acre."

Some authorities have estimated that nearly a billion more pounds of beef could be produced in eight Midwestern states if grasslands were fertilized according to the recommendations of college agronomists in those states. Or the present beef output could be produced from about half to two-thirds of the acreage now used.

"Some agronomists, too, say that milk production per acre could be doubled or tripled on many Midwestern farms by the use of more fertilizer, better seed and improved grazing methods," reports the committee.

"The money-making advantage of getting more meat or milk per acre from pasture or hay lies in the fact that as the yield goes up, the per unit cost of production goes down. This can help farmers meet the present cost-price squeeze."

The committee points out that top yielding, quality pasture depends first on high soil fertility, the use of well adapted legume seed from strains that are winter-hardy and disease resistant, and on good management that rotates the grazing and permits harvest when the legume's feeding value is high.

★

Midwestern farmers can increase their profits from the 1955 wheat crop by top-dressing their fields with fertilizer this spring, reports the Middle West Soil Improvement Committee. The committee says it is particularly important to add nutrients if there is any question about the crop's need for phosphate and potash.

"On many fields it will pay to use from 200 to 300 lb. of a complete fertilizer such as 10-10-10 as a spring top-dressing," says the committee, which bases its statement on top-dressing trials in the eastern Corn Belt.

"If the soil is already high in phosphate and potash, then it is wise to consider top-dressing with a nitrogen fertilizer. For this purpose, agronomists suggest using the equivalent of 100 to 200 lb. per acre of ammonium nitrate to help increase yields."

The committee points out that a farmer's profits can be increased as much as $20 per acre when wheat production is boosted by 10 bu. "As yields go up, production costs go down," it says.

Recommend it with confidence!
Sell it with Pride!

MACKWIN Agricultural CHEMICALS

MACKODIEL SEED TREATMENT

NEWEST, BEST — MOST ECONOMICAL AND EFFECTIVE!

costs your customers only 11¢ per ACRE

FOR PROTECTION AGAINST WIREWORMS, SEED CORN MAGGOTS AND OTHER INSECTS

CONTAINS 50% DIELDRIN

Mackodiel is especially formulated for slurry, dry mixing or planter box treatment of corn. Mackodiel is also recommended for onions, beans, soybeans, small grains and many other crops.

MACKWIN Agricultural CHEMICALS

WRITE, WIRE OR PHONE for further information on Mackodiel and the complete line of Agricultural Chemicals manufactured by the Upper Midwest's largest and oldest manufacturing chemists.

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Manufacturing Chemists since 1887
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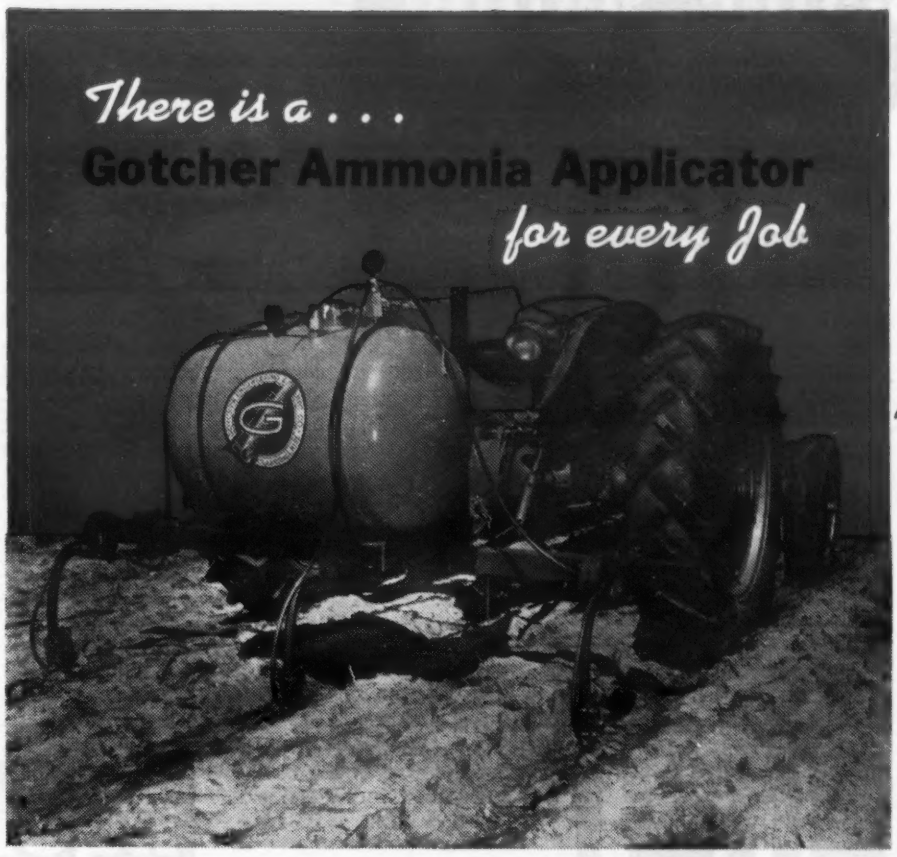
WINONA, MINNESOTA

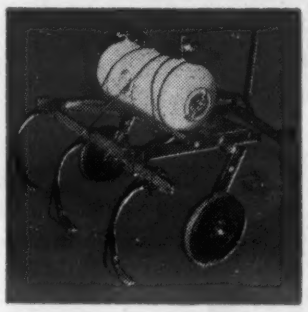
There is a . . .
Gotcher Ammonia Applicator
for every Job



GOTCHER MODEL GUC.
A Complete Ammonia Applicator for Only $325

The Gotcher Model GUC fills the need for an inexpensive but sturdily built anhydrous ammonia applicator for the nation's smaller farms. Now with this low cost, top quality unit, any farmer can apply ammonia to his crops with his own applicator. Increased yields from one season's use alone can more than pay for its small cost. The Model GUC will do an excellent job in row crops, or as a broadcast applicator. The 3-point hitch attachment means quick, simple mounting and dismounting. Though designed for maximum economy, it's built to the rigid requirements of Gotcher quality.

Hi Clearance Model Ideal For Side Dressing Row Crops



The 26-inch clearance of this special Gotcher model makes it higher than the tractor axle even in operating position. This permits later side dressing to all row crops without plant damage. This unit has all the rugged characteristics of the popular Gotcher Standard Pull-Type Applicator. Completely equipped as shown here, it sells for only $568.

Exclusive Gotcher Sealing Wing Eliminates Packer Wheels

This scientifically designed Sealing Wing is an exclusive Gotcher feature that guarantees against loss of ammonia under any soil conditions. It can be added to the applicator knives on any Gotcher model as optional equipment, and eliminates the need for packer wheel attachments.

Dealerships Available on Gotcher Ammonia Equipment

The Gotcher Line is a complete line that means more sales, and more dealer profits. Write for our 1955 Catalog that describes all Gotcher Pull-Type, Tractor-Mounted, and Semi-Mounted Ammonia Applicators.

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ENGINEERING AND MANUFACTURING CO.
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GOOD EQUIPMENT DOESN'T COST. . . It Pays!

Tests on Fertilizer Placement Implements Planned in Oklahoma

STILLWATER, OKLA.—Oklahoma A&M agricultural engineers will test effects of fertilizer placement implements on plant emergence of cotton, peanuts and sorghums at four state locations in 1955.

Purpose of the experiments will be to test new fertilizer machinery now on the market and to determine the best width of applicator, according to Jay G. Porterfield, A&M agricultural engineer.

"Fertilizer placement will be kept the same distance from the seed in all tests," he said, "but widths of the applicators will vary from one-half to four inches."

Test locations are at Chickasha, Stratford, El Reno and Altus, according to Mr. Porterfield, who said plans are to continue the experiments for a number of years.

Kansas Meeting

CONCORDIA, KANSAS—A commercial fertilizer meeting was held at the high school cafeteria here recently under the auspices of the Young Farmer class of the high school. Speaker of the evening was Dr. Floyd Smith, Kansas State College. Also on the program was Bob Easley, Manhattan, representative of Olin Mathieson Chemical Co. Robert Colby, Cloud County extension agent, gave results of fertilizer application to crops in the county last year. Mark Doyen, president of the Young Farmer class, presided.

Board Can Prohibit Sale of Low-Grade Fertilizer, Ruling Says

LITTLE ROCK—The Arkansas attorney general's office has ruled that the state Plant Board has the authority to prevent the sale of certain, extra low-grade fertilizer.

Paul H. Miller, chief inspector of the Plant Board, asked the attorney general's office whether the board could prohibit the sale or refuse to register low-grade fertilizer containing large amounts of inert material.

"If from the chemical analysis of the so-called fertilizer (it) cannot in fact, or in your opinion, be called fertilizer, then the board may refuse to register it or may prevent its sale," said the opinion, written by Dowell Anders, assistant attorney general.

NOW! Cash in on liquid nitrogen solution boom

with new BUTLER aluminum TANKS

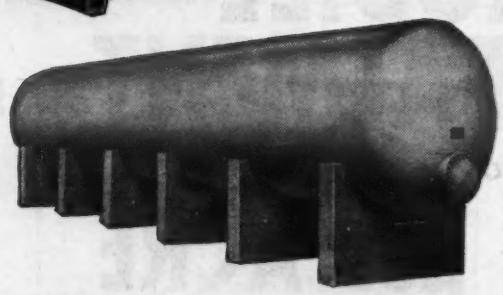
Welded low-pressure skid tank for on-farm storage. Available in 500, 830 and 1000-gallon capacities. Others (without skids) from 100 to 1000 gallons.

Liquid nitrogen solution fertilizers are sweeping the country! More and more farmers are applying nitrogen this new, fast, low-cost way. This is your chance to get in on the ground floor of a booming market—and profit as demand soars!

Butler now offers two types of special alloy non-corrosive aluminum bulk storage tanks for nitrogen solutions: (1) Bolted vertical 22,000-gallon tanks for non-pressure solutions; (2) Welded horizontal 12,000 and 22,000-gallon bulk storage tanks for low-pressure solutions.

Smaller size horizontal aluminum tanks in 100, 270, 500, 830 and 1000-gallon capacities are also available. The 500, 830 and 1000-gallon tanks can be factory-equipped with skids for on-farm storage or transporting solutions from bulk station to farm.

Act now and cash in! Send coupon today for full information.



Welded low-pressure tank for bulk storage. Available in 12,000 and 22,000-gallon capacities.

Bolted 22,000-gallon non-pressure tank for bulk storage.

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Sprayer Firm Exhibits at Fairs

Through exhibits at county fa in Wisconsin and northern Illino the Farmrite Sprayer, Inc., Clyma Wis. is imparting a product kno ledge to farmers, reports Ken Je sen, treasurer. The company mak special sprayer outfits for use tractors and in buildings on the far and also sells chemicals to do va ous types of spraying.

Offering a complete service farmers, the firm employs salesm who cover the Wisconsin and nort ern Illinois territory, selling t sprayers and chemicals to farme talking over spray problems wi them and also setting up the spra ers for them. The salesmen also co back to check on the operations the sprayers.

After a customer has bought spray outfit, reports Mr. Jensen, a has used it, his neighbors usual come and watch it in operation. Th when the sprayer salesman retur to check on its operation, the ori nal customer usually has the nam of several interested prospects.

Arkansas Expands Study of Weed Control in Rice

FAYETTEVILLE, ARK.—The U versity of Arkansas' Agricultural E periment Station and the Agric tural Research Service of the U Department of Agriculture are operating in a study of ways to co trol weeds in rice fields, according Lippert S. Ellis, dean and direct of the College of Agriculture.

The USDA has assigned a fu time research agronomist to dire the work. Dr. Roy J. Smith, coop ative agent in agronomy, will be s tioned at the University's R Branch Experiment Station Stuttgart. The research will carried on in the greenhouses a on the fields of the station, and outlying farms.

Dr. Smith's appointment brings three the number of USDA agro mists stationed at the Rice Bran Station as cooperative agents. Dur the past two years research into t control of weeds in rice fields h been handled by A. M. Davis, assi ant agronomist of the Arkansas E periment Station staff as part of overall study on chemical weed co trol. Dr. Smith's appointment ma possible a considerable expansion the rice study, and permits Dr. Da to concentrate his efforts on we control research in cotton, soybea and corn.

Peach Bulletin

FAYETTEVILLE, ARK. — Ark sas peach growers, whose commerc trees total over 2 million, will pr from a new bulletin entitled "F tors that Influence Production, S and Quality of Peaches," according J. R. Cooper of the University Arkansas' Department of Horti ture and Forestry. The publication ports the results of many years experimentation at the Main A cultural Experiment Station here, Fruit and Truck Branch Station Hope, and the Peach Substations Nashville and Clarksville, as well outlying orchards in each vicin In this, his latest report, Prof. Coo deals with the effects of fertiliz pruning, thinning, and various tural practices on the size, prod tion, color and quality of the f

Soils throughout the commer peach growing area of Arkansas too low in fertility to produce he crops annually without supplem tal fertilization, according to P Cooper.

Stauffer Chemical Sales Reach New High in 1954

NEW YORK — Stauffer Chemical Co. sales during 1954 totaled $82,-382,000, an 8% gain over sales of $76,638,000 in 1953, according to the firm's annual report.

Sales of agricultural chemicals increased 13%, from $17,886,000 in 1953 to $20,208,000 in 1954.

The total sales for 1954 established new highs in dollar value and physical volume for the firm.

Pre-tax earnings increased 3% over 1953 from $10,199,000 to $10,516,000. Net income after taxes increased 5% over 1953 from $5,464,000 to $5,726,-000. Per share earnings of $2.44 compared with $2.31 in 1953.

The ratio of profit from operations to sales, excluding depreciation and amortization, was 16.2% as compared with 16.9% in 1953.

In commenting on sales of agricultural chemicals the firm noted in the report that "new insecticide facilities, new distribution channels and an expansion of the sales organization enabled the company to enter important new market areas."

The report also states:

"In the field of agricultural chemicals, research was directed to the development of new products and to the improved formulation of existing products. A new product, Vapam, a soil sterilant for control of fungi, nematodes and weeds, was offered for experimental sale late in 1954.

"It is believed that soil sterilization offers a fast growing market for agricultural chemicals and that Vapam will find an important place in this market. Process development work was concentrated on piloting the production of new, balanced (nitrogen-phosphorus-potassium) fertilizers, and on completing the development of a new process for the production of high gamma benzene hexachloride by direct chlorination."

The company paid quarterly cash dividends during the year of 32½¢ per share, a total of $1.30 for the year. Dividends represent 53% of earnings.

TOLERANCES

(Continued from page 1)

ous sprays which are necessary in today's agricultural economy," Mr. Larrick said.

"Farmers should follow carefully the directions which appear on pesticide labels so that the crops will not have too much residue. It is especially important that pesticides should be used only on crops for which they are intended; to use a pesticide on a crop for which it is not recommended may leave residues which would render the food illegal under the federal law," he said.

Under the provisions of the Pesticide Amendment, safe tolerances must be established by July 22, 1955, for pesticides which leave residues in or on raw food crops. Under certain conditions pesticides which cause no foreseeable hazard to the food supply under accepted conditions of use, may be exempted from the requirement of a tolerance.

Ten groups of common spray materials such as copper fungicides were exempt from the requirement of a tolerance in regulations published Feb. 4. Tolerances were set under the old law for residues of 31 commonly used materials in other regulations published March 11. These automatically become tolerances under the new amendment.

FERTILIZER SUPPLIES

(Continued from page 1)

for over half of this category which totals 100,000 to 150,000 tons N a month.

Imports are seen to have provided a substantial share of nitrogen supplies during the past two years and to have exhibited more of a seasonal supply trend than that shown by domestic production.

The estimated current capacity (260,000 tons N a month) is just under the total supply (including imports) for the peak month last year. Obviously, this does not represent the maximum monthly rate that could be attained, since surplus material produced during periods of low demand can be stored and shipped during periods of heavy demand. Despite the increased capacity and a probable pickup in imports, some concern has been expressed in the trade whether all demands will be met on schedule this spring.

Not only is production of nitrogen on an upward trend, but the production of superphosphate, instead of undergoing the usual decline in November, continued on the upward trend which began last August, the commerce department reports.

This increase represented 4% compared with October, 1954, or 18% compared with November, 1953. Normal superphosphate showed more change from October to November than did concentrated (triple) superphosphate.

However, November's 1954 output of triple superphosphate (50,896 tons P_2O_5) was 43% greater than in the same month of the preceding year. It is estimated that present facilities for producing triple, excluding TVA (which, it is reported, will stop production this year) are capable of turning out approximately 67,000 tons P_2O_5 a month. As a result, higher monthly production is anticipated as spring demand approaches its peak.

Salty Water Damaging Rio Grande Land

YSLETA, TEXAS—The light runoff water from the Upper Rio Grande watershed the last few years is producing disastrous effects on hundreds of fields formerly watered from the river. As the river water became unavailable each year, hundreds of farmers were forced to drill irrigation wells.

Much of this well water is salty, and is causing severe salting out of the land, according to D. E. Longnecker of the Texas Agricultural Experiment Station.

Not only are the salt spots affecting crop production, but the presence of sodium salts in the water is causing serious changes in soil structure. The soil becomes hard and cloddy, and in some instances becomes almost impermeable.

ALABAMA INSECT CONTROL

AUBURN, ALA. — Insect control measures saved Alabama farmers $13 million in crops and livestock in 1954, according to W. A. Ruffin, Alabama Polytechnic Institute extension entomologist.

FREE...for all your customers

new, full color pamphlets tell how yields can be increased with NITROGEN

● MANY FAILURES to get expected responses from fertilizer applications are caused by lack of balance between nitrogen, phosphorus and potash. No one element can do the job alone. All three are found in the soil, but the one in short supply will limit the yields. Heavy yields require heavy applications of NITROGEN—more than is generally available from organic matter, crop residues, manure and starter fertilizer. Therefore, supplemental nitrogen is essential to profitable production of corn and other crops.

These important facts – and the reasons behind them—are explained, simply and accurately, in the two new pamphlets prepared by United States Steel agronomists.

The pamphlet, "MAKE BIGGER PROFITS WITH USS AMMONIUM SULPHATE" includes profit-building recommendations and remarks on corn and on many other crops as well. The symptoms of nitrogen deficiency and sufficient nitrogen are dramatically compared in full color.

The other color pamphlet, "HOW TO FIGURE NITROGEN FOR BIGGER CORN YIELDS" includes a useful and dependable field worksheet on which the farmer can easily figure his own nitrogen requirements. Starting with his *desired* per acre yield, he can figure the nitrogen he already has and how much more he needs to get the yield he wants.

How many do you want?

This is a first-rate, down-to-earth opportunity to boost your nitrogen sales. Check the number of pamphlets you want on the coupon and we will rush them to you free of charge. Be sure that every customer gets one.

But don't delay . . . the spring fertilizing season is at hand. Mail the coupon today.

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Please rush to me, without charge, my copies of your new, full color literature as follows:

_____ copies of "Make bigger profits with USS Ammonium Sulphate"
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USS

UNITED STATES STEEL

Corn Borer Destroys 7% of Crop in 1954

Estimates of Damage by the European Corn Borer to Corn Grown for Grain in the U.S. in 1954

State—	Counties Known to be infested* No.	Counties Included in estimate No.	Total state production 1,000 bu.	Estimated data: Value per bu. dollars	Estimated data: Value of production 1,000 dol.	Estimated data: Loss of crop 1,000 bu.	Estimated data: Loss of crop 1,000 dol.
Connecticut	8	8	188	1.75	329	Trace	1
Delaware	3	3	5,115	1.48	7,570	108	160
Illinois	102	102	429,116	1.31	562,141	38,242	53,922
Indiana	92	92	247,652	1.36	336,806	‡3,123	‡4,247
Iowa	99	99	521,640	1.36	709,430	93,950	127,772
Kansas	88	25	31,388	1.45	45,512	164	238
Kentucky	98	98	63,360	1.40	89,404	1,012	1,416
Maryland	23	23	16,400	1.51	24,764	167	252
Massachusetts	14	1	184	1.75	322	Trace	1
Michigan	51	17	69,476	1.36	94,487	552	750
Minnesota	87	69	242,476	1.24	300,670	5,697	7,064
Missouri	112	47	59,560	1.47	87,553	¶1,053	¶1,548
Nebraska†	83	33	188,160	1.40	263,424	22,000	30,800
New Hampshire	9	7	86	1.75	150	Trace	1
New Jersey	21	12	6,864	1.58	10,845	51	81
New York	60	17	9,636	1.56	15,032	8	13
North Dakota	44	18	10,633	1.19	12,653	167	199
Ohio†	88	88	212,976	1.40	298,166	6,517	9,124
Pennsylvania	67	67	49,680	1.56	77,500	268	419
Rhode Island	5	5	33	1.75	58	Trace	1
South Dakota	63	41	102,388	1.25	127,985	17,650	22,063
Vermont	14	5	84	1.75	147	Trace	1
Virginia	92	7	26,004	1.64	42,646	112	183
West Virginia	51	3	8,055	1.49	12,001	2	3
Wisconsin	71	71	96,360	†1.50	144,540	†771	†1,156
Total	1,445	958	2,398,014	...	3,264,135	191,614	261,415

*Does not include 151 counties in 12 other states for which estimates were not made.

†Estimates prepared by states; production and crop values differ slightly from Dec. 15 Agricultural Marketing Service reports.

‡State estimate of damage used in computing loss.

¶Adjusted loss prepared by state.

WASHINGTON — Almost 192 million bushels of grain corn worth more than $261 million—about 7% of the national crop—were destroyed by the European corn borer in 1954, the U.S. Department of Agriculture has estimated.

This is more than double 1953's estimated 3% loss of 90 million bushels worth more than $125 million. Last year's losses have been topped only once, in 1949, when corn destroyed by the borer was estimated at almost 314 million bushels worth nearly $350 million.

These estimates were made for 958 counties in the 25 eastern and midwestern states which produce 90% of the corn grown for grain. They include 60% of all counties known to be infested by the corn borer in this country.

They are based on actual 1954 fall surveys of borer populations made by state entomological survey teams in 608 counties of the 25 states, and on losses computed for an additional 350 infested but unsurveyed counties in these states.

Iowa, Illinois, Nebraska and South Dakota suffered heaviest losses to the insect, according to the estimates. Iowa lost almost 94 million bushels of her 1954 crop, Illinois more than 38 million bushels, Nebraska 22 million bushels and South Dakota more than 17 million bushels.

The borer entered this country on imported broomcorn before 1917, and has since spread into 37 states, including most of the U.S. main corn-growing sections.

State-by-state losses, both in bushels and dollars (prices to farmers on Dec. 15, 1954) are shown in the accompanying table.

The loss of corn due to damage by the European corn borer for five years prior to 1954 is estimated in bushels and crop loss value as follows: in 1953 about 90 million bushels valued at $125,466,000; in 1952, 53,270,000 bu., $77,205,000; in 1951, 35,812,000 bu., $57,438,000; in 1950, 58,765,000 bu., $84,912,000; and in 1949, 313,819,000 bu., $349,635,000.

SOIL TESTING

BOSTON — State Experiment Stations here are offering a free service in analyzing soil. County agents are setting aside a certain day for farmers to bring in samples, which will be sent to the stations. A special direction sheet is sent to those request-it from the stations.

Chase Representative On Walker Cup Team

CHICAGO — Jim Jackson, Chase Bag Co. sales representative and amateur golf star from St. Louis, has been named to the U.S. Walker Cup team for his second consecutive year.

The 32-year-old golfer won Missouri State and Trans-Mississippi championships during 1954, carrying on a brilliant career which came to national attention when he was low amateur in the National Open of 1952.

As a spare time sportsman, Mr. Jackson gets in his practice shots during the winter at an indoor driving range and says that his game is in "pretty good shape" considering the weather. In May the nine-man Walker Cup Team will play the famous St. Andrews course in Scotland, and it is also customary for the team to be invited to the Masters tournament at Augusta, Ga., Apr. 7-10.

Mr. Jackson has been with the Chase Bag Co. for over seven years. He represents the company in the St. Louis area and is associated with the firm's branch office at 5033 S.W. Ave.

Jim Jackson

BEAIRD ANHYDROUS AMMONIA EQUIPMENT

Since the introduction of anhydrous ammonia as a commercial fertilizer, Beaird engineers have worked closely with the industry to develop special equipment for handling this nitrogen-rich liquid fertilizer. Behind the Beaird line of anhydrous ammonia equipment is the experience of thirty-six years in manufacturing pressure storage vessels for the petroleum and chemical industries.

PACKAGED STORAGE INSTALLATIONS

Available on "Turn-Key" or "Install-it-yourself" basis

Now you can install bulk storage for anhydrous ammonia as a complete packaged storage plant. You may order it as a "Turn-Key" job or on an "Install-it-yourself" basis. On "Turn-Key" jobs the entire installation, including all assembly and final inspection, is handled by Beaird service engineers. On "Install-it-yourself" installations, a Beaird service engineer is available for supervision after tank has been located on foundations and is ready for piping.

Packaged storage plants may be installed with one or more tanks of the following sizes: 2,000, 3,000, 6,000, 12,000, 15,000, 18,000 or 30,000-gallon. These tanks are manufactured in our Shreveport factory and tested by X-Ray. Piping is pre-assembled to simplify field work.

Plant layout is planned to fit your individual needs and the entire installation engineered to meet state and code regulations.

PACKAGED STORAGE STATIONS—3,000, 6,000, 12,000 and 15,000-gallon. This patented Beaird development is delivered complete, ready to operate. Includes integral steel pontoon type foundations and all necessary fittings, pump or compressor and safety controls.

TRAILER TRANSPORTS—twin-tank 5,400-gallon transport. Mounted on heavy duty tandem axle assembly. Smartly designed and finished in white enamel over primer coat.

TRUCK AND TRAILER TANKS — 500 and 1,000-gallon. 1,000-gallon tanks made in 41" and 46" diameters, equipped with interior baffles and meet all state regulations. Available unfitted or fitted with highest quality fittings for top, or bottom withdrawal. Hose assembly supplied upon request. Extra fill valve coupling for dual filling to cut filling time in half. Finished in white enamel.

APPLICATOR TANKS — for mounting on applicator unit or tractor. Made in following sizes: 110, 150 and 200-gallon. Available unfitted or fitted with highest quality fittings. Finished in white enamel.

Let us quote you on your requirements for anhydrous ammonia equipment.

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SHREVEPORT, LOUISIANA

WORLD REPORT

Industry News from Everywhere

By GEORGE E. SWARBRECK
Croplife Canadian and Overseas Editor

A Canadian source reports that the Quebec Ammonia Co., Ltd., an organization formed under the auspices of Robert Campbell, the Vancouver industrialist, has changed its location plans.

In February, officials announced that the $7.5 million plant was to be sited at Contrecoeur, near Sorel. However, it is now revealed that the company has taken up an option on land at Varennes, near the eastern tip of Montreal Island. The report states that the company has purchased nearly 100 acres for $100,000. A major advantage of the new location is the better availability of labor.

At one time, it was suggested that Quebec Ammonia was considering Valleyfield, Que., as a possible site. However, ships bringing material to the plant will need a 30 ft. draft and this is not available. The problem would not have been solved with the building of the St. Lawrence Seaway, even if the company decided to wait that long, for the plans call for a draft of only 27 ft.

Several chemical companies are located in Varennes and an unconfirmed report states that a U.S. company is currently studying plans to establish a fertilizer plant in the area. Another organization located there is the Electric Reduction Co., of Canada which started operating a newly built phosphorus plant in 1953.

Loan to India

India will buy fertilizer out of funds provided on a loan basis by the U.S. Foreign Operations Administration. In addition, provision is to be made for the purchase of supplies and equipment for the control of malaria.

The loan, settled at $45 million, is the largest ever negotiated under the Mutual Security Act, according to Washington sources.

The Indian government is currently engaged on a five year development program aimed at increasing food production and eradicating disease.

The local production of fertilizer is helping out but even if the projected rate of expansion is achieved in the next few years, the demand for fertilizer will still not be satisfied. Officials, therefore, express themselves as entirely satisfied with the aid given by the U.S. administration.

Dutch Expansion

Mekog, the Dutch synthetic fertilizer group, has announced plans to increase its annual nitrogen production from 70,000 to 95,000 tons. Technically the development means a revolution in method because the nitrogen, officials reveal, is to be produced from heavy oil. An additional requirement, as part of the scheme, is the building of a new oxygen factory and plans are progressing with this object in view.

Portuguese Promotion

Efforts to increase the production of fertilizer and to persuade farmers to make greater use of the availability are being actively pursued by the government of Portugal.

Supplies of superphosphate are reported to be adequate but a proportion of the requirements of nitrogenous fertilizers has to be imported. All three nitrogen plants in the country operated at near capacity levels during 1954 and greater usage resulted in the yearly downward trend of yields, apparent for more than 20 years, being reversed.

One retarding factor is that the government is not anxious to increase its subsidy policy while so much of the required material has to be imported. However, plans are being made to increase local supply and when this is done, observers expect that incentives will be given to the farmers.

Spanish Increases

The drive to increase fertilizer production in Spain is commanding the attention of the government. Announcing the success of last year's drive, the Ministry of Industry reports that the production of superphosphates, set at 1,417,000 metric tons, represented an increase of 11% over 1953. Nitrogenous fertilizer production, set at 160,000 metric tons, was an increase of 36%, the statement adds.

Canadian Controversy

During the past few weeks there has been some debate in Canadian farming circles concerning the efficacy of anhydrous ammonia. From the published reports, it is evident that there was some confusion in the minds of growers. The situation has been clarified by the publication of a report on tests conducted at one of the government agricultural substations.

Anhydrous ammonia was tested as a nitrogen fertilizer for corn on clay soil at Woodslee, Ont. The tests indicated that when properly applied the nitrogen supplied by ammonia gas was as effective in increasing corn yields as was ammonium nitrate fertilizer.

The tests also showed little or no difference in corn yields resulting from pre-plant and side-dress applications. In these tests, the report says, ammonia gas was placed midway between the corn rows at a depth of 5 to 6 in.

The report warns that when using anhydrous ammonia, every effort should be made to place it deep enough in the soil so that the gas will not escape from the soil into the air. Application at a depth of 5 to 6 in. is usually sufficient to give good coverage, the report indicates.

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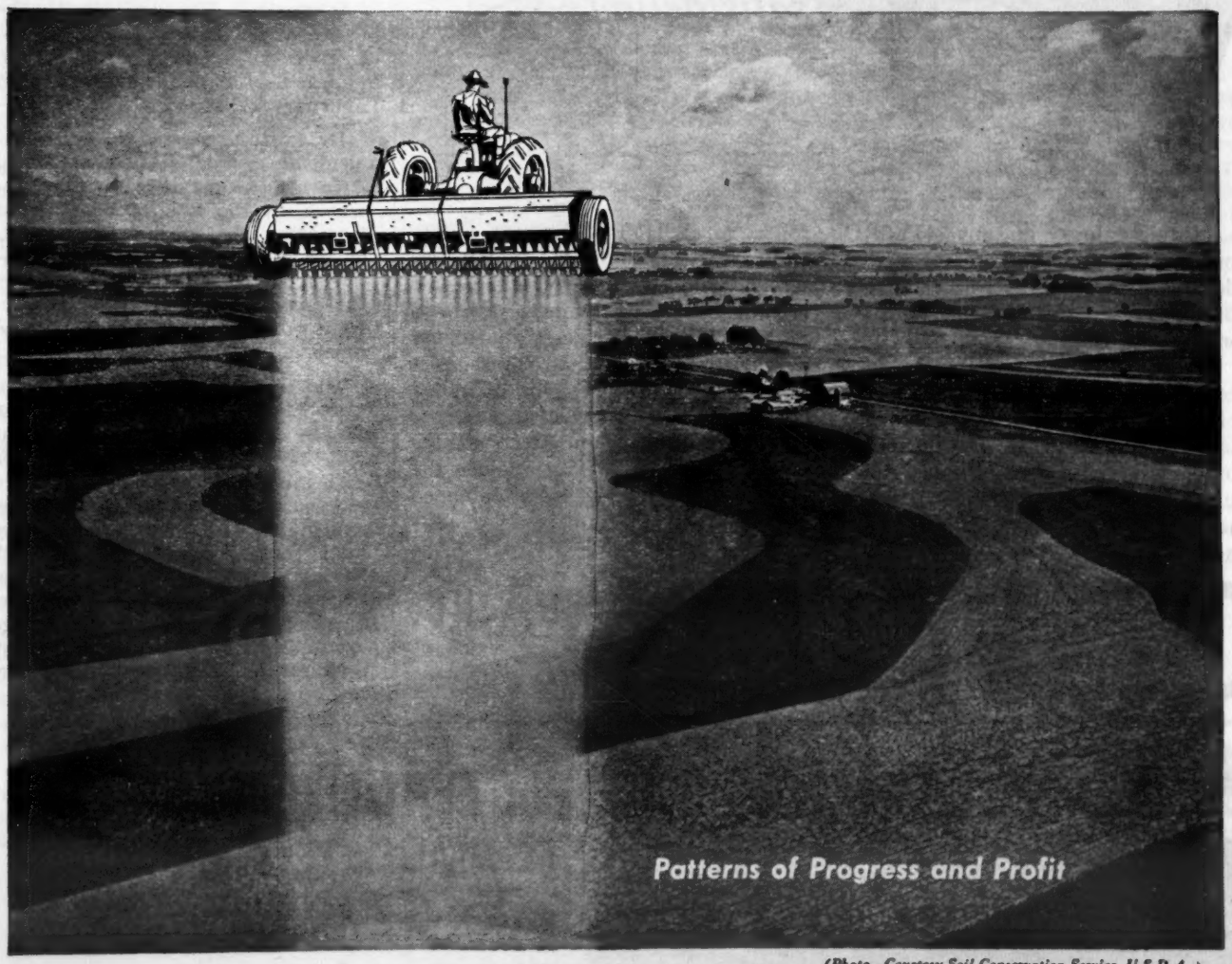

(Photo—Courtesy Soil Conservation Service, U.S.D.A.)

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by DUVAL
Duval Muriate of Potash ranks high as one of the essential nutrients which greatly increase yield and profits in crop production.
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NORTH CENTRAL ESA

(Continued from page 1)

aeration system of fumigation in a general re-evaluation of many methods now in use was also foreseen. The big need is for education along this line with the chief idea being to have clean wheat, he indicated.

Dr. D. A. Wilbur, Kansas State College, Manhattan, Kansas, in discussing the past, present and future of grain protectants, also predicted that the use of protectants as a preventive measure will increase, but so also will the use of fumigants.

He pointed out that there is a tremendous untouched market in Kansas alone. From 75 to 100 million bushels of wheat are in storage in that state each fall, of which only about 15% is treated in any way, he said. "This leaves around 85% of 100 million bushels of wheat ready to be treated in one way or another."

Dr. Wilbur raised the question why there should be such intense competition between different means of grain sanitation for the relatively small quantity in which protective measures are taken, when perhaps 85 million bushels of grain in the state of Kansas alone is not being treated by any method. The whole problem, he indicated, is one of education.

The Kansas entomologist reviewed the past and pictured present methods of grain sanitation as well as looking into the future. He reviewed some of the past methods of protecting grain through the use of pulverized rock and also the attempts to use pyrethrins alone. By adding piperonyl-butoxide as a synergist for pyrethrins, this method was greatly improved, he said.

In commenting further on the use of preventive measures in grain sanitation, Dr. Wilbur said that the protectant type of treatment has the advantage of being both a repellent and a toxicant. As to dusts and sprays, he said that after five years of use, the two methods are about equal in popularity. The situation is "touch and go" as to which process, dust or spray, will win out in the farmer's estimation.

The subject of insects and mites in dairy products was discussed by F. O. Marzke. He outlined the problems involved in keeping mite populations out of cheese and of attempts to keep powdered milk free from insect contamination.

The historic attraction of mice to cheese is another problem of contamination which must be confronted in storage of dairy products, he said. The problem is partially solved by the presence of the paraffin covering over the cheese in many cases, but due to the shrinkage of cheese within the shell and also due to possible cracks caused by handling, avenues of entry are made for various contaminants.

In his paper "What are we doing about the Khapra Beetle?" R. T. Cotton, USDA, Washington, D.C., told about the efforts made to halt the beetle's distribution through quarantine measures adopted by the States of Colorado, Nevada, Utah, New Mexico, Arizona, and California. Later, a Federal quarantine against the khapra beetle was made effective. (February 21, 1955.)

Dr. Cotton reported the establishment of a field station at Mesa, Ariz., last August to conduct research on the khapra beetle, and formation of a subcommittee headed by A. E. Michelbacher of California to coordinate research on this insect by the U.S. Department of Agriculture, California and Arizona.

"The Bureau of Entomology, California State Department of Agriculture, is experimenting on the treatment of commodities to free them from infestation, and with control methods for eradicating the insect from infested premises," he reported. Other State agencies in California are evaluating contact insecticides and various fumigants, determining the effect of methyl bromide fumigation on germination of seed, and studying the effect of temperature, light, and food on the development of the khapra beetle. In Arizona, the food preferences of the insect are being determined.

Dr. Cotton said that khapra beetle is resistant to fumigants and contact insecticides, but not more so than many other stored-grain pests. "It is, however, more difficult to eradicate from infested establishments than others owing to its habit of crawling into spaces in the structure of the buildings where it is difficult to reach. It is a matter of observation that several infested warehouses that were thought to be entirely free of infestation after 3 or 4 thorough sprayings were found in the following spring to have tremendous infestations of the insect when grain was stored there," he declared.

The next 10 years, Dr. Cotton said, should tell whether we can confine the khapra beetle to its present distribution, or whether it will spread throughout the United States. It has been the history of the khapra beetle that once established in a country it is difficult to eradicate. In fact, there is no record that it has ever been eradicated from a country in which it has obtained a foothold.

This portion of the meeting was concluded with a report on sanitation and insect control in food processing plants, presented by T. F. Winburn and G. T. Daughters.

A section on cereal crop insects set the stage for a number of papers on soil insecticides. C. C. Burkhardt, Kansas Agricultural Experiment Station, Manhattan, described methods of control of the western corn root worm. He said that according to tests made in Kansas, the most effective and economical method of control for the western corn root worm is by way of the band treatment at time of planting with a material such as aldrin or heptachlor.

The effect of insecticides on corn root growth was discussed by H. J. Ball, University of Nebraska, Lincoln. He described tests made during the past two years on the relative phytotoxic properties of a number of soil insecticides including aldrin, DHC and heptachlor.

During the spring and summer months, corn plants were removed from the treated plots in the field for root length measurements, the paper said. It was found that root length measurements determined from plants in replicated plots treated with aldrin, BHC and heptachlor indicated that in three out of four plots, the heptachlor-treated roots were of greatest length. BHC compared favorably with aldrin, he said, in the matter of length of roots of test plants.

Ralph A. Blanchard, USDA, in discussing infestations of corn earworm in the North Central States in 1954 said that damage last year was heavy. Surveys in Indiana and Illinois were good examples, he said.

In Indiana loss ranged from 3 to 7% of the crop in the three major agricultural districts of the state with an average of 3.4% loss. Total monetary loss was estimated at $10,300,000.

In Illinois, loss ranged from 1.0 to 7.45% in the nine agricultural districts into which state is divided with an average of 4.02% loss for the state as a whole. Total monetary loss due to damage to dent corn for Illinois was estimated at $19,000,000.

Mr. Blanchard declared that control methods for corn earworm remain about the same so far as materials are concerned, but emphasized the importance of proper timing. That it is "very difficult" to obtain a high percentage of worm-free ears in the extremely susceptible hybrids was pointed out by Mr. Blanchard.

Control in the future, he predicted, lies in the development of more resistant sweet corn hybrids, with special attention being paid to lines which do not tiller excessively

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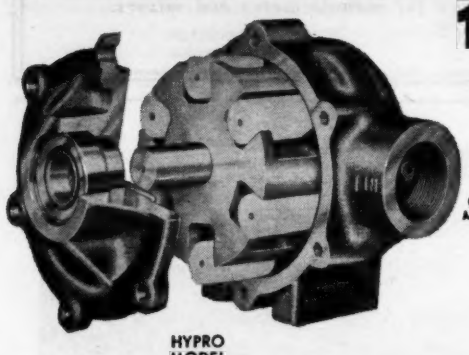

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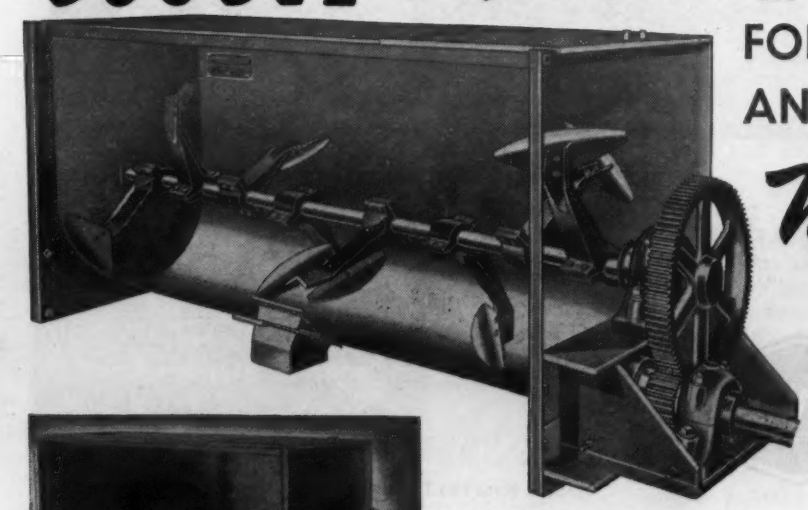

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and in which the position of the leaves is such that the ears are not protected from the spray.

Climatic factors must also be taken into consideration and the use of light traps to determine the number of moths should be increased to help determine the optimum time to begin control operations.

"The use of both attractants and repellents to protect the corn might be studied to advantage," the speaker said. "Both might be directed toward either the moth or larva," he added. High mortality rates may be obtained by both airplane or ground applications of dust, and combinations of preliminary dust or spray applications followed by applications of spray to the ears for larval control should be studied, he concluded.

Dr. Ray Hutson, Michigan State College, told the conference that current interest in soil treatments and present progress in nematode consciousness and control are not only related, but "inextricably linked." He pointed out that knowledge of nematodes is necessary when it comes to diagnosing above-ground symptoms of soil insect attacks. "The same techniques of study, the same control measures and often the same chemicals are employed against nematodes and insects," he declared.

Other sections heard numerous papers on toxicology, parasites and predators, vegetable crop insects, systemics and biology, insects of man and animals, forest and ornamental insects, legume insects, fruit insects and discussions on the teaching of entomology.

Dr. George C. Decker, Illinois Natural History Survey, Urbana, president of the Entomological Society of America, parent organization, spoke briefly at the branch meeting and Dr. Harold Gunderson, chairman, discussed some of the problems involved in filling the "fifth plate." He looked ahead some 15 years to 1970 when the population of the U.S. is expected to be about 200 million. This predicted increase in population raises some serious problems, he said, because while our population is growing, the farm area is shrinking. The expansion of cities takes away more farm land while at the same time leaves fewer people on the farm to feed the city dwellers. These encroachments, in addition to the building of highways, airports and industrial sites, bring about losses approaching one million acres of good farm land each year.

The branch chairman indicated that while chemical control of agricultural insect pests is not the sole answer to the problem, yet control must bear most of the responsibility for preventing insect losses. He indicated that there is a tremendous educational job to be done and, as this is accomplished, there will be greater and greater use of insecticides throughout the country.

Dr. C. C. Alexander, Geigy Agricultural Chemicals Co., Bayonne, N.J., discussed future insecticide developments. He reviewed some of the many new pesticidal chemicals which have made their appearance during the past ten years and predicted that fewer new insecticides will make their appearance during the next decade. "The emphasis will be on less toxic materials and the organic phosphates appear to offer promise in this field," he said. He added that much more work will be done in the field of systemic insecticides.

Dr. Alexander indicated that the lack of great numbers of new insecticides during the next few years is not a discouraging picture. "There is a wide range of effective compounds now available," he said and suggested that instead of searching for a new insecticide whenever a problem arises, an attempt should be made to find means of applying insecticides now in use.

A new emphasis needs to be placed on the value of controlling the more or less chronic infestations such as those of forage crops instead of using pesticides only in cases where serious outbreaks of insects occur.

A tour of the Lansing plant of the John Bean Division of Food Machinery & Chemical Corp. was made by most of the conventioneers on Friday afternoon. Buses provided transportation. John Bean Div. was also host at a luncheon for the entire convention Friday noon.

Too Much Potato Acreage Planned for 1955, USDA Says

WASHINGTON — Reports from farmers regarding their March 1 acreage plans for the 1955 season again indicate too many late-crop potatoes, the U.S. Department of Agriculture said March 29. If the acreage now planned in the 29 late states is actually planted, average yelds will produce a crop 2% larger than 1954 production and 8% larger than recommended by the department for 1955.

Recommended acreage guides issued by the department called for a reduction of about 5.5% in planted acreage as compared with last year on an over-all basis. Specifically, a reduction of 15% was recommended for Maine; 10% for Minnesota and North Dakota; and 5% for the western states.

The intentions-to-plant reports indicate substantial increases over the department guide recommendations as follows: Maine, up 15%; Long Island (New York), up 6%; North Dakota, up 11%; Minnesota, up 11%; Idaho, up 13%; Colorado, up 7%; Utah, up 9%; Oregon and northern California, each up 5%; and Washington, up 12%.

Mid-South Farm Income Declines

MEMPHIS—Farmers of Alabama, Mississippi and Tennessee received an estimated $1,350,660,000 in cash receipts from their marketings in 1954, the U.S. Department of Commerce has reported.

Included in the totals, compiled by the Agricultural Marketing Service of the Department of Agriculture, were $377,277,000 in Alabama, $520,060,000 in Mississippi and $453,323,000 in Tennessee.

In Mississippi, cash receipts dropped from $662,315,000 in 1953, a reduction of 21.5%, largest rate of decrease in the U.S.

ISRAEL PLANT

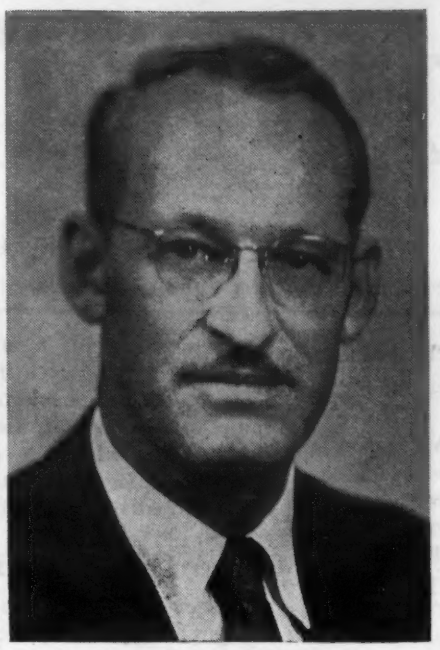
(Continued from page 1)

approved under the Israel Law for the Encouragement of Capital Investments.

Mr. Salmon said the new plant will produce a wide range of materials geared to the requirements of Israel's expanding agriculture. Emphasis will be placed on plant protection materials such as hexachlorocyclohexane and copper oxychloride.

Maximum daily output will include 8.3 tons of caustic soda and 7.5 tons of chlorine, 3 tons each of hydrochloric acid 33% and Eau de Javel 10%, 5 tons of benzene hexachloride 13% gamma.

The basic raw materials, chlorine and caustic soda, will be produced by electrolysis of sodium chloride or potash, using a recycling brine system and the mercury cell process. The raw materials, salt and potash, are available in Israel in abundant quantities, Mr. Salmon said.



Emil A. Madison

TO HEAD GANDY SALES—Emil A. Madison has been appointed sales manager of the E. S. Gandrud Co., Inc., Owatonna, Minn., manufacturers of Gandy fertilizer spreaders and seeders. Formerly manager of the Machinery Division of the Pacific Supply Co. of Walla Walla, Wash., Mr. Madison will direct an expanded and intensified sales drive sparked by the addition of four new Gandy spreader-seeders to the company's line. Recently placed in production by Gandrud are the new Mid-L-Wheel in 1-, 2- and 3-hopper sizes, and a new single hopper machine featuring a 16-bag capacity hopper with no-bridging design and new rotor principle.

CORN EARWIG IN MAINE

ORONO, MAINE—The corn earwig was reported in Maine last year for the first time in history.

Use of Antibotics To Be Discussed at Kentucky Burley Clinics

LEXINGTON, KY.—The use of antibiotics to check wildfire of tobacco will be demonstrated as part of a series of clinics to be run in nine Kentucky cities April 4 to 8 under the sponsorship of the University of Kentucky.

One of the major topics to be discussed is the effectiveness of agrimycin—a Terramycin and streptomycin formulation—against the disease. The purpose of the five-day programs is to bring to county agents and tobacco growers the latest developments in planting, growing and harvesting burley tobacco.

The series is being conducted by Russell Hunt, extension agronomist from the University of Kentucky, and Dr. W. D. Valleau, plant pathologist at the university's Tobacco Research station.

Each of the nine clinic sites has been chosen to serve approximately 10 to 12 burley-growing counties. These are the cities and dates: Lexington, April 4; Shelbyville and Campbellsville, April 5; Owensboro and Elizabethtown, April 6; Hopkinsville and Maysville, April 7, and Bowling Green and Somerset on April 8.

National Research Corp. Names Vice President

CAMBRIDGE, MASS. — Gordon Kiddoo has been elected vice president in charge of development, it was announced by National Research Corp. Mr. Kiddoo previously was director of the development department for the past three years. He has been associated with the firm for four years.

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Cooperation on Miller Act

A fine spirit of cooperation between the government and industry was evident at the recent St. Louis meeting of the National Agricultural Chemicals Association. In a panel discussion regarding the Miller amendment to the Food and Drug Act, two high-ranking members of the government agencies responsible for the enforcement of the new act and two representatives of the pesticide manufacturing trade spent a couple of concentrated hours in discussing various matters regarding the bill.

This type of frank and open discussion of mutual problems involved have a strong tendency to break down misunderstanding and to clear the air for better cooperation.

The two government representatives, Dr. W. G. Reed, Chief of the Pesticide Regulation section of the Agricultural Research Service, USDA and Winton D. Rankin, Assistant to the Commission of the Food and Drug Administration, handled themselves very well in replying to the many questions put to them by the industry. Joseph A. Noone, Technical Adviser for the NAC association and John D. Conner, NAC council, also had their share of questioning during the all-morning session.

Out of it all came a much better appreciation of how business will be operated after July 22, 1955, when the Miller provisions become effective. Lea S. Hitchner, Executive Secretary of the NAC, did an admirable job of handling the situation in acting as moderator of the panel.

Some of the comments made by Mr. Conner can well be reviewed by the industry. He brought out the fact that it is probable that cases may come up in the future where too much residue is found on a crop. Just who would be responsible for this is not clearly known as yet, mostly because this type of situation has not been litigated in the courts to any substantial degree as yet.

To be on the safe side, however, Mr. Conner suggested labels and literature should be reviewed and a study made on all the crops on which these materials are to be used. The manufacturer should appraise recommended spray schedules to determine whether they could result in an excessive residue on the crops for which tolerances are to be set.

This is probably one of the first things that manufacturers should look into as the time approaches when the new law will be effective.

He suggested further that if such a study should indicate that illegal residue might result from the use of the product under present instructions, the manufacturer should immediately revise his literature and labels to conform to the tolerance. It might also be advisable, he said, for a manufacturer to alert his salesmen and distributors and request that they bring this to the attention of users in their territories. This done, only a minimum of difficulty should be expected from this quarter.

Mr. Rankin indicated that the job of attending to all requests for tolerances will be "monumental," but added that Washington will do its best to expedite requests and to answer all questions regarding tolerances. The industry is happy to see such a cooperative attitude and the result is bound to be a smoother operation all around.

Joe Noone assured his listeners that the new law will practically eliminate any possible danger of food being contaminated from improperly used pesticides. He assured the Government representatives present that the industry is willing to do the right thing and can be counted on to work whole-heartedly toward the objectives sought by the Miller amendment.

From comments heard from NAC Association members at the meeting, the panel discussion on the Miller amendment not only answered many questions, but also showed that the men involved on both sides—government and industry—have a splendid attitude which will be translated into further gains for the pesticide trade.

Effective Application Needed

Insect resistance to various pesticides has brought many a headache to insecticide manufacturers, formulators, dealers and custom operators. With a new pest control season coming on, the same problem is sure to arise again.

In years past, when farmers noted that some of their insecticidal treatments were tending to lose their punch, the first thing that came to their minds was that the toxicant may not be performing well. Instead, part of the trouble was that many of the insects were surviving the applications and their progeny became even more tough and resistant to insecticides.

A recent talk by Claude Neiswander of the entomology department of the Ohio Agricultural Experiment Station at Wooster gives some good pointers on how to allow for bug resistance to pesticides. In explaining what "resistance" is, he said that when an insect formerly susceptible to control by the use of a given insecticide had become, or is becoming, less susceptible in successive generations to exposure to that particular compound, it can be termed "resistant."

On the other hand, if the insect was never susceptible to control by the compound in question, then the definition could not apply. "Natural selection sorts out individuals for survival. Their progeny then gradually increase in resistance with each successive generation until it becomes fixed," he explains.

Now, bringing this down to practical application, he suggested that it might be advisable in the long run to use stronger doses of the insecticide to kill more of the partially resistant individuals in an initial application, thus leaving fewer survivors to develop resistance later on.

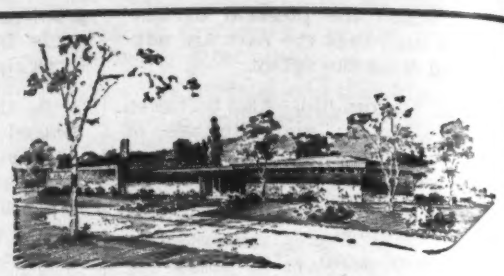
The use of a single material exclusively until it fails to control and then to make a complete shift to another insecticide is better than to compromise the situation in its early stages by using the second material alone or in conjunction with the first too soon in the control schedule, he suggested. Continuing use of a single material might also aid in combatting the tendency for resistance to develop in a species, Mr. Neiswander added.

Real as is the resistance problem, however, the Ohio entomologist warned against being too ready to blame all poor control results on resistance in the pests themselves. "Actually," he said, "the lack of results may be due to poor application techniques."

Effective insecticides are being produced by the millions of pounds in the U.S. and entomologists say that there is enough variety in the types of toxicants to keep well ahead of the bugs. The problem is in the proper application of these preparations. Growers should be reminded at all times to "Read and Heed" the insecticide labels and to apply the material at the right time.

Quote

Industrial technology provides the extra food on the table, the extra mile on the speedometer, the extra dollar in the wallet. It is the extra bushel in the barn, the extra suit in the closet, the extra diploma at commencement time. It is extra hours of leisure, the extra years of health and of life, and the extra measure of security.—Henry B. DuPont, E. I. DuPont de Nemours & Co.



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MEETING MEMOS

April 19—Minnesota Ground Sprayers Assn., Organizational Meeting, Conference Room of Coffey Hall, University of Minnesota Farm School, Jim March, Cambridge, Minn., Secretary.

Apr. 26 — Third Annual California Fertilizer Conference, sponsored by the Soil Committee, California Fertilizer Assn., University of California, College of Agriculture, Davis, Cal., Sidney H. Bierly, Executive Secretary, CFA, 475 Huntington Drive, San Marino, Cal.

May 15-17 — Chemical Specialties Manufacturers' Assn., Statler Hotel, New York.

May 19—Fertilizer Section, 25th Annual North Carolina Safety Conference, Robert E. Lee Hotel, Winston Salem, N.C.; William C. Creel, Safety Director, Department of Labor, State of North Carolina, Raleigh, Chairman.

June 2 — South Carolina Fertilizer Meeting, Sandhill Experiment Station, near Columbia, S.C.

June 3—Fertilizer Section, Virginia State Safety Association, Jefferson Hotel, Richmond, Va.; William C. Richardson Southern States Cooperative, Richmond, Chairman.

June 12-15—Joint meeting, American Plant Food Council, Inc. and National Fertilizer Association, Greenbrier Hotel, White Sulphur Springs, W.Va. Paul T. Truitt, American Plant Food Council, 910 17th St. N.W., Washington, D.C., in charge of registration.

June 21—Western Agricultural Chemicals Assn., Spring Meeting, Clark Hotel, Los Angeles, C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Secretary.

June 22—Pacific Slope Branch, Entomological Society of America, Mission Inn, Riverside, Cal.

June 28-30 — Sixth Annual Pacific Northwest Plant Food Assn. Regional Fertilizer Conference, Boise Hotel, Boise, Idaho, Leon S. Jackson, 702 Lewis Bldg., Portland, Ore., secretary.

Aug. 10—Kentucky Fertilizer Conference; Guignol Theatre, University of Kentucky, Lexington.

Aug. 15-19 — American Society of Agronomy and Soil Science Society of America, University of California, Davis Campus.

Sept. 7-9 — National Agricultural Chemicals Assn., Spring Lake, NJ.; Lea S. Hitchner, NAC Executive Secretary, 1145 19th St. N.W., Washington 6, D.C.

Sept. 7-9 — Ninth Annual Beltwide Cotton Mechanization Conference, Texas A&M College, National Cotton Council of America, Box 18, Memphis 1, Tenn.

Oct. 17-18 — Fertilizer Section, National Safety Congress, LaSalle Hotel, Chicago, Thomas J. Clarke, Chairman.

Nov. 2-3 — Annual Convention, Pacific Northwest Plant Food Assn., Pilot Butte Inn, Bend Ore., Leon S. Jackson, 702 Lewis Bldg., Portland, Ore., Secretary.

Nov. 7-8—California Fertilizer Assn., Thirty Second Annual Convention, Hotel Mark Hopkins, San Francisco, Sidney H. Bierly, Executive Secretary & Manager, 475 Huntington Drive, San Marino, Cal.

Nov. 29-Dec. 2—Entomological Society of America, Netherlands Plaza Hotel, Cincinnati.

Dec. 5-7—Agricultural Ammonia Institute, Kansas City; Jack F. Criswell, Executive Vice President, Claridge Hotel, Memphis, Tenn.

Ralph B. Dysart

PENICK TRANSFER—S. B. Penick & Co. and its affiliate, the New York Quinine and Chemical Works, Inc., have completed a revision of the territories of its representatives in the Midwest and Southwest. Ralph B. Dysart, formerly a Penick representative in the Chicago area, now has his headquarters at Dallas, Texas and serves both NYQ and Penick in Texas, Oklahoma, Arkansas, Louisiana and New Mexico. Mr. Dysart has been with the Penick group since 1945 when he first joined the company at its Asheville, N.C., collection depot.

SOILS FORUM

MANHATTAN, KANSAS — A forum on soils has been set for Nov. 29-30 at Kansas State College, Manhattan, Harold E. Myers, chairman of the forum committee, has announced. The forum is the fourth to be held at Kansas State College and the second in a series of three based on the general theme, "Water, Soil and People."

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Classified advertising rate not available for commercial advertising. Advertisements of new machinery, products and services accepted for insertion at minimum rate of $9 per column inch.

All Want Ads cash with order.

HELP WANTED

WANTED — COMPETENT FERTILIZER factory superintendent for new dry mixing and granulation plant. Location—South Dakota. Applicant must have clean record. In replying give complete information as to age, experience, references, salary and so forth. Address 652, Croplife, Minneapolis 1, Minn.

FOR FAST ACTION AND RESULTS try Croplife's CLASSIFIED ADVERTISING

COUNCIL FORMED

MEMPHIS, TENN. — Farmers of Tennessee have organized the Tennessee Agricultural Council, aimed at expressing the needs and wishes of the Tennessee cotton farmer in matters of legislation and policy. Its headquarters will be in Memphis. The newly incorporated farm group is headed by J. T. Haynes of Brownsville, Tenn., as president, and will have Knox T. Hutchison, former assistant secretary of agriculture of Murfreesboro, Tenn., as manager.

INDEX OF ADVERTISERS

Acme Fisher Div., Broadway Corp. .....
Acme Protection Equipment Co. .....
Agricultural Chemicals Division, Pittsburgh Coke & Chemical Co. 2, 7
Agricultural Chemical Equipment Co. 2
Allied Chemical & Dye Corp., General Chemical Division 15
Allied Chemical & Dye Corp., Nitrogen Div.. 10, 11
American Potash & Chemical Corp. .....
Anco Manufacturing & Supply Co. .....
Ashcraft-Wilkinson Co. 23
Bagpak Division, International Paper Co. .....
Baker, H. J., & Bro. .....
Baughman Manufacturing Co. .....
Beaird, J. B., Company 22
Bemis Bro. Bag Co. .....
Bradley & Baker 24
Broadway Rubber Corp. .....
Burkhardt-Larsen Co. 8
Burrows Equipment Co. .....
Butler Manufacturing Co. 20
Calcium Carbonate Co. .....
California Spray-Chemical Corp. .....
Campbell, H. D., Co. .....
Chase Bag Co. .....
Chemical Specialties .....
Chipman Chemical Co. .....
Clover Chemical Co. .....
Commercial Solvents Corporation .....
Croplife 28
Deere & Co., Grand River Chemical Div. .....
Diamond Alkali Company 4
Doane Agricultural Service .....
Douglas Chemical Co. 8
Ellsworth Equipment Co. .....
Export Chemical Corp. of Colorado .....
Fischbein, Dave, Co. .....
Floridin Company .....
Frontier Chemical Co. .....
Gandrud, E. S., Co. .....
Geigy Agricultural Chemical Co. .....
General Chemical Division, Allied Chemical & Dye Corp. 15
Gotcher Engineering & Mfg. Co. 19
Grace Chemical Co. 18
Grand River Chemical Div., Deere & Co. .....
Hahn, Inc. 5
Hammond Bag and Paper Co. 23
Henderson Mfg. Co. .....
Hercules Powder Co. .....
Highway Equipment Co. .....
Hills-McCanna Co. .....
Hypro-Engineering, Inc. 24
International Minerals & Chemical Corp. .....
International Paper Co., Bagpak Division .....
K. B. H. Corporation, The .....
Kay Enterprises .....
Kraft Bag Corporation .....
Larvacide Products, Inc. .....
Lion Oil Co. 5
The Mackin Co. 19
Markley Laboratories, The 23
Wilson & George Meyer & Co. .....
Michigan Chemical Corporation .....
Midstate Machinery Co. .....
Naugatuck Chemical Div., U.S. Rubber Co. ...
Nelson, Edward S., Ltd. .....
Nitrogen Div., Allied Chemical & Dye Corp.. 10, 11
Pacific Coast Borax Co. .....
Pacific Plastics Company .....
Pennsylvania Salt Manufacturing Company of Washington .....
Chas. Pfizer & Co., Inc. .....
Phelps-Dodge Refining Corp. .....
Phillips Petroleum Company 13
Pittsburgh Coke & Chemical Company, Agricultural Chemicals Division 2, 7
Potash Company of America 3
Poulsen Company .....
Powell, John & Co., Inc. 12
Private Brands, Inc. .....
Rapids Machinery Co. 24
Raw Materials Trading Co. .....
Riverdale Chemical Co. 25
Savage, K. E., Co. .....
Schrock Fertilizer Service .....
Shell Chemical Corp. .....
Specifide, Inc. .....
Spencer Chemical Co. .....
Stoker, H. S., Company .....
Tennessee Corp. .....
Thompson-Hayward Chemical Co. 17
Union Bag and Paper Corp. .....
United Petroleum Gas Co. .....
U.S. Industrial Chemicals Co. .....
United States Potash Co. 6
U.S. Rubber Co., Naugatuck Chemical Div. ....
United States Steel Corp. 21
Velsicol Corporation .....
Virginia-Carolina Chemical Corp. .....
Vulcan Stamping & Mfg. Co. .....
Vulcan Steel Container Co. .....

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AUGUST 23, 1954
Vol. 1
No. 31
Cover Crop Provisions of ACP Outlined
Program Authorizes Payment for Lime, Fertilizer, Seed
Impact of Farm Law on Industry Hinges on Diverted Acre Policy
Fall Fertilization, Need for Balanced Fertility Stressed at Wisconsin Ammonia Meeting
Single-Fisher Suffocits Acid Unit Starts Up
Compliance Deadline Near for Kentucky Law
Minnesota Armyworm Campaign Saves $40 Million
INSECT, PLANT DISEASE NOTES
See Page 4
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